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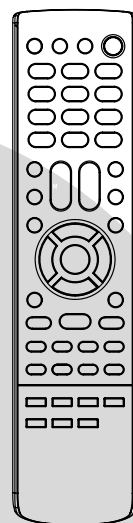
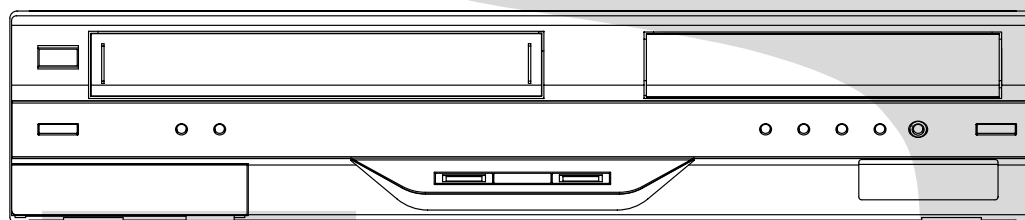
SERVICE MANUAL



Hi-Fi

Hi-Fi VCR & DVD VIDEO RECORDER

D-VR4SU *D-VR4SC*



Limited warranty (continued)

How to Obtain Warranty Services

If, after following all of the operating instructions in this manual and checking the section "Troubleshooting," you find that service is needed:

- (1) For instructions on how to obtain warranty service for your DAV Product, contact TACP's Consumer Solution Center toll free at 1-800-631-3811.
- (2) You must include a copy or original bill of sale or other proof of purchase along with the entire DAV Product to the Depot Warranty Repair Center specified by the TACP Consumer Solutions Center. You are responsible for all inbound transportation and insurance charges for the DAV Product to the Depot Warranty Repair Center specified by the TACP Consumer Solutions Center.

For additional information, visit TACP's website:
www.tacp.toshiba.com

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TOSHIBA AMERICA CONSUMER PRODUCTS, L.L.C.



J2G10101A SH 05/02

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Hi-Fi VCR & DVD VIDEO RECORDER D-VR4SU

OWNER'S MANUAL

VHS Hi-Fi

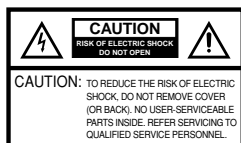


©2005 Toshiba Corporation
This device does not tape-record copy protected DVD Video Discs.

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Introduction

SAFTY PRECAUTIONS



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, do not expose this appliance to rain or moisture.

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

FCC NOTICE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance with the FCC Rules could void the user's authority to operate this equipment.

CAUTION: THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS USER'S GUIDE CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION.

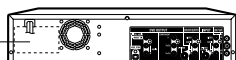
USE OF CONTROLS, ADJUSTMENTS OR THE PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

TO PREVENT DIRECT EXPOSURE TO LASER BEAM, DO NOT TRY TO OPEN THE ENCLOSURE. VISIBLE LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

Location of the required Marking

The rating sheet and the safety caution are on the rear of the unit.

CERTIFICATION: COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.



IMPORTANT SAFEGUARDS

1. READ INSTRUCTIONS

All the safety and operating instructions should be read before the unit is operated.

2. RETAIN INSTRUCTIONS

The safety and operating instructions should be retained for future reference.

3. HEED WARNINGS

All warnings on the unit and in the operating instructions should be adhered to.

4. FOLLOW INSTRUCTIONS

All operating and use instructions should be followed.

5. CLEANING

Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.

Use a soft dry cloth for cleaning the exterior cabinet only.

6. ATTACHMENTS

The manufacturer of this unit does not make any recommendations for attachments, as they may cause hazards.

7. WATER AND MOISTURE

Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

8. ACCESSORIES

Do not place this unit on an unstable cart, stand, tripod, bracket, or table.

The unit may fall, causing serious injury, and serious damage to the unit.

- 8A.** An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. VENTILATION

Slots and openings in the cabinet back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating.

These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and/or the manufacturer's instructions have been adhered to.

10. POWER SOURCE

This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company.

11. GROUNDING OR POLARIZATION

This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

12. POWER-CORD PROTECTION

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

PORTABLE CART WARNING
(symbol provided by RETAC)



S3125A

IMPORTANT SAFEGUARDS

13. LIGHTNING

To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.

14. POWER LINES

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall onto or against such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.

15. OVERLOADING

Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.

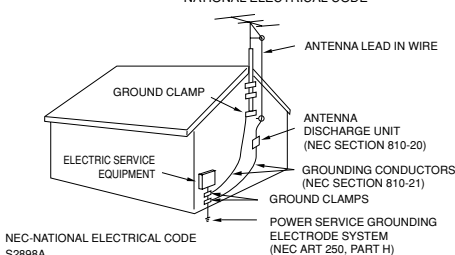
16. OBJECT AND LIQUID ENTRY

Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

17. OUTDOOR ANTENNA GROUNDING

If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



18. SERVICING

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

For example:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the unit.
- If the unit has been exposed to rain or water.
- If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
- If the unit has been dropped or the cabinet has been damaged.
- When the unit exhibits a distinct change in performance, this indicates a need for service.

IMPORTANT SAFEGUARDS

19. REPLACEMENT PARTS

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

20. SAFETY CHECK

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

21. HEAT

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

22. DISC TRAY

Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

23. CONNECTING

When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause a product damage. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

24. LASER BEAM

Do not look into the opening of the disc tray or ventilation opening of the product to see the source of the laser beam. It may cause sight damage.

25. DISC

Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

26. NOTE TO CABLE TV SYSTEM INSTALLER

This reminder is provided to call the Cable TV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

CONDENSATION

Moisture will form in the operating section of the DVD/VCR if the unit is brought from cool surroundings into a warm room or if the temperature of the room rises suddenly. When this happens, the DVD/VCR's performance will be impaired.

To prevent this, let the DVD/VCR stand in its new surroundings for about an hour before switching it on, or make sure that the room temperature rises gradually.

Condensation may also form during the summer if the DVD/VCR is exposed to the breeze from an air conditioner. In such cases, change the location of the DVD/VCR.

* This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Consumers should note that not all high definition television sets are fully compatible with this product and may cause artifacts to be displayed in the picture. In case of 525 progressive scan picture problems, it is recommended that the user switch the connection to the "STANDARD DEFINITION" output. If there are questions regarding our TV set compatibility with this model 525p DVD player, please contact our customer service center.

* Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

* "DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

* Unauthorized recording of copyrighted television programs, films, video cassettes and other materials may infringe the rights of copyright owners and be contrary to copyright laws.

* Certain audio features of this product manufactured under a license from Desper Products, Inc. Spatializer®, N-2-2™ and the circle-in-square device are trademarks owned by Desper Products, Inc.

* Windows Media and the Windows logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

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Media mark

Each applicable media are indicated using the symbol shown below.

	: DVD-Video		: DVD-R
	: DVD-RW in VR mode		: Audio/Video CD and CD-R/CD-RW
	: DVD-RW in Video mode		: Video tape
	: DVD-RAM		

Features

Not only can you playback and record video tapes, but you can also playback DVD discs or make recordings using DVD-RAM, DVD-RW or DVD-R discs with this unit. In addition, you can enjoy editing the programs you record.

Playback function

A realistic, powerful, Movie Theater sound

When connected to Dolby Digital and DTS compliant devices, you can enjoy realistic, powerful surround sound.

Playback the scene you want to see immediately

As DVD's do not require rewinding like video tapes, you can get to the scene you wish to watch immediately. A variety of search functions allow you to find the scene you wish to watch.

Title menu

As thumbnail images are displayed in the title menu, you can find the title you want to play back quickly.

- Thumbnail image will not appear after finalizing and DVD-R

Video CD/SVCD/MP3/WMA/JPEG playback

Video CD/SVCD/MP3/WMA files can be played back. Also, you can display JPEG files on the TV screen and enjoy them as a slide show.

Progressive scan

This unit supports the progressive scanning system. If your TV is equipped with component video input jacks which support the progressive video input, you can enjoy high quality picture.

Chase Playback

You can begin playback from the beginning of a program currently being recorded. You will find this function of great advantage on long programs, as you do not have to wait for the end of recording to begin playback.

Recording function

Timer recording

The timer recording system allows you to select the date, time and channel and record the desired programs. Up to 12 timer programs within a month can be stored in this unit.

One-touch Timer Recording (OTR)

The One-touch Timer Recording feature provides a simple and convenient way to make a timed recording.

Edit function

Editing recorded material without changing the original titles

You can create a playlist based on the original titles. The playlist won't affect the original titles. If you erase the playlist, the original titles remain. It is recommended to create and edit the playlist to prevent important titles from being erased accidentally.

Chapter mark

You can add (or delete) a chapter mark to (from) the original title. This function is useful when searching for the scene you wish to watch that you have marked with the Chapter mark function.

Erasing scenes

You can erase an unnecessary scene from the created playlist or the original titles.

Combining titles

You can combine several original titles or playlists to a separate playlist.

Dubbing function

Dubbing a tape onto a disc or a disc onto a tape

With just this one unit, you can dub however you like, from video tape to disc, or from disc to video tape.

- Dubbing cannot be carried out when attempting to copy a "copy guarded" video tape or disc.

Disc

Handling discs

Removing the Disc from its case

- Be sure to hold the disc by its edges.
- Do not touch the surface of the disc.
- Take the disc carefully from its case.
- Do not scratch the disc.
- Do not get dirt on the surface of the disc.
- Do not stick labels or adhesive tapes on the disc.
- Do not drop or bend the disc.

Storing discs

- Store the disc in the case to avoid any risk of scratches, dirt or damage.
- Do not leave the disc exposed to direct sunlight or in hot or humid places.

Cleaning discs

- Wipe the disc with a clean, dry cloth from the center outward toward the edges.
- Do not wipe the disc in a circular motion around the center.
- Do not use liquid or aerosol cleaners.



DVD-RAM discs with cartridges are recommended for recording.

- Two types of DVD-RAM discs are available: ones with cartridges and ones without cartridges. You can use either of them with this recorder, but the former ones are recommended.
- In order to record highly detailed data, make sure the disc is clean. DVD-RAM discs with cartridges are easier to handle in this regard.
- Do not open the cartridge shutter. The disc may not play, or may not be recorded or edited once it becomes dirty.
- There are two types of DVD-RAM cartridges: removable (TYPE 2/4) and not removable (TYPE 1). It is recommended you do not remove the disc even when you can.
- Refer to the instruction manual that comes with the disc if it is absolutely necessary to remove the disc.
- Some commercially available cartridge discs cannot be recorded or edited once the inside discs are removed.
- To protect recorded contents: Slide the write-protect tab to "PROTECT" with something small enough. The disc can play, but cannot be edited or erased. Refer to the instructions that come with the disc.

Notes on copyright

The unauthorized recording, use, distribution, or revision of television programs, videotapes, DVDs and other materials, is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and/or criminal liability.

Discs which can be played back

In this unit, you can play discs that meet the standard, such as those bearing the below logo marks on the disc label surface. If you use a non-standard disc, we cannot guarantee playback. Even if such a disc can be played back, we cannot guarantee the image or sound quality. The DVD logo is a registered trademark.

Media type	Logo mark
DVD-Video	
DVD-RAM Ver.2.0 Ver.2.1	
DVD-RW Ver.1.0 Ver.1.1 Ver.1.2 Ver.1.1CPRM support	
DVD-R Ver.2.0 (Ver.2.0/4x/8x)	
Audio CD*	
Video CD	
SVCD	
CD-R/CD-RW	

* This unit is designed to playback music Compact Discs (CD) that conform to the CD standard. CDs that contain (copy-restriction) signals to protect copyrights cannot be played back.

Notes on DVDs and Video CDs

Because of problems and errors that can occur during the creation of DVD and Video CD software and/or the manufacture of DVD and Video CD discs, Toshiba cannot guarantee that this DVD/VCR will play every feature of every DVD bearing the DVD logo and/or every Video CD bearing the CD logo. As one of the creators of DVD technology, Toshiba DVD players are manufactured using the highest standards of quality, and as a result, such incompatibilities are rare. If you happen to experience any difficulty playing a DVD or a Video CD on this DVD/VCR, please feel free to call our Consumer Solution Center (see back cover page).

Region management information

This unit is designed and manufactured to support the region management information that is recorded on a DVD disc. If the region number written on the DVD disc does not correspond to the region number of this unit, this unit cannot play that disc.

- The region number of this unit is "1".
- The unit will play DVD-Video discs marked with labels containing "1" or "ALL".

Example:

Operating DVD-Video

Some operations of DVD-Video may be prohibited by the manufacturer, or some operation methods or functions of the DVD-Video may be different from the description in this manual.

- If you attempt an operation that is prohibited by either the disc or the unit, a "W" mark will appear on the TV monitor. For operations prohibited by the disc, see the information that came with the disc.
- When the menu screen or the operation guide appears during disc playback, follow the displayed information.

Discs which cannot be played back

The discs listed below cannot be played back in general. Even if one of these can be played back, it may not be played back correctly. If a disc is played back by mistake, extensively loud sounds may blow the speakers or may damage the hearing of those in hearing range. Do not playback the discs listed below.

CDG, Photo-CD, CD-ROM, CD-TEXT, CD-EXTRA, SACD, PD, CDV, DVD-ROM, DVD+R/RW, DVD audio, etc.

Disc

The below DVD-Video may not be played back.

- DVD-Video that do not have the region number "1" or "ALL".
- PAL or SECAM DVD-Video.
- Prohibited or business-use DVD-Video.

CD-R/CD-RWs cannot be played back for the following reasons.

- Compatibility of the disc and this unit.
- Compatibility of the disc and the recorder used.
- Unfinalized discs.

Do not playback the following discs. Playback of these discs may cause a failure.

- Discs on which paper, labels or stickers are affixed.
- Discs that have sticky areas left by adhesive tape.
- Special-shaped discs.

Discs on which video can be re-recorded

To record video with this unit, use the discs below:

Media type	Logo mark
DVD-RAM Ver.2.0 Ver.2.1	
DVD-RW Ver.1.0 Ver.1.1 Ver.1.2 Ver.1.1CPRM support	
DVD-R Ver.2.0 (Ver.2.0/4x/8x)	

DVD-RAM

- Use only DVD-RAM discs that comply with DVD-RAM standard Version 2.0 or 2.1.
- The recorder cannot record on a disc formatted in any other standard. When using such a disc, initialize it by using the disc-format function of this recorder.
- The recorder can not record, dub, or edit some DVD-RAM discs, because they are edited/recorded with another manufacturer's equipment or PC, contain a large number of titles, or have little remaining capacity. Also, a DVD-RAM disc may not be edited or recorded if its title contains still pictures.
- DVD-RAM discs formatted in UDF2.0 on a PC are not compatible with this recorder. Before using these discs, initialize them on this recorder.
- This recorder complies with current copyright protection technology and can copy a disc only when the disc permits copying once. When there is no indication on the disc, copying will not be allowed. Such an indication on a disc is required also for the Library Management database.

DVD-RW

- The disc can be erased and used again about 1,000 times.
- Only the VR mode can be used for Ver.1.0 discs.
- With Ver.1.1/1.2 discs, you can record by selecting the VR mode or Video mode.
- When you record in the VR mode, you can repeatedly record and erase. By erasing unnecessary titles, you effectively increase remaining time.
- When you record in the Video mode, you can record until the disc becomes full.
- When you use the Video mode, you can newly record on the disc by formatting the disc. However, if the disc is formatted, all the recorded contents will be erased.

DVD-R

- You can record on the disc only in the Video mode.
- You can record until the disc becomes full.
- Finalizing the discs allows playback on other DVD players. However, the finalized discs can no longer be recorded.
- Discs can be recorded to repeatedly until they are finalized.

NOTES:

- There are some players that cannot playback discs that were recorded with this unit. We cannot guarantee the playback with other units.
- This unit cannot record on DVD-RAM/RW/R discs that are 8 cm in diameter.
- This unit cannot record on CD-RW/R.

Recording format

This unit has two modes for formatting discs for recording: VR mode and Video mode. When a blank, new disc is loaded into this unit, the automatic format function starts to format the disc. (For the disc format setting in this step, see page 27.)

VR mode

- This mode can be used for DVD-RAM/RW.
- In this mode, the discs can be recorded and edited repeatedly.
- The disc recorded in this mode can be played back with other DVD-RW-compatible players.
- When a Ver.1.1 CPRM or Ver. 1.2 disc is used, you can record a "Copy Once" program (see page 53).
- This mode can be used for DVD-R and DVD-RW (Ver.1.1/1.2).
- When you finalize the disc after recording, the disc recorded with this unit can be played back with other DVD players.
- Recording, editing or playback of an unfinalized disc can be done only with this unit. However, there are some limitation to editing operations.
- In this mode, you cannot record a "Copy Once" program (see page 53).
- When you record a TV program of a bilingual broadcast, only one of the audio modes can be recorded. You have to select it.

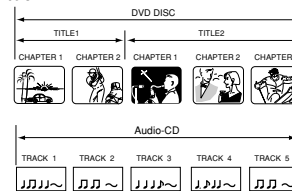
Format modes that can be used with each disc
The usable format depends on the media type as shown in the below table.

Media type	Format	Available functions
DVD-RAM (Ver.2.0/2.1)	VR mode	Playback, recording and editing (Original/playlist)
DVD-RW (Ver.1.0)	VR mode	Playback, recording and editing (Original/playlist)
DVD-RW (Ver.1.1 and 1.2)	VR mode	Playback, recording and editing (Original/playlist)
	Video mode	Playback and recording (Editing with limitation)
DVD-R (Ver.2.0/4x/8x)	Video mode	Playback and recording (Editing with limitation)

Disc

Title/Chapter/Track

A DVD-Video has large partitions called "Titles", and smaller partitions within them called "Chapters". A music CD has other partitions called "Tracks". A number is allotted to each partition and these numbers are called "title numbers", "chapter numbers" or "track numbers".



When recording in the VR mode

One-time recording is set to 1 title (1 chapter). However, if you stop recording temporarily or erase scenes by editing, the chapter will automatically be partitioned. The interval between chapters can be specified. (See page 31.)

When recording in the Video mode

One-time recording is set to 1 title. In recording, chapters are set automatically. The interval between chapters can be specified. (See page 31.)

NOTES:

- In this title, chapter and track are numbered, but some discs may not record the numbers.
- Recording on DVD-R/RW in the Video mode is a new standard approved at the 2000 DVD forum. Conformity to this standard varies with each DVD player manufacturer. Some models of DVD player or DVD-ROM drive, therefore, will not playback recorded videos.

Disc playback in other players

The disc can be played back in other players that can playback DVD-RW and DVD-R. For more information on finalization, see "FINALIZE" in "Setting the disc" (page 27).

When recording in the VR mode

Even if a DVD-RW disc recorded in the VR mode is finalized, you can record or edit by cancelling the finalization. (See "UNDO FINALIZE" on page 28.) When you playback the disc with another player, make sure that the DVD player supports DVD-RW.

When recording in the Video mode

When a disc recorded in the Video mode is finalized, it cannot be recorded onto any more. Therefore, before finalization, be sure to perform all desired recording. After finalization, a title list that can be used by the DVD player is automatically created.

NOTES:

- The finalization process may require from a few minutes up to 1 hour depending on the disc type and the amount of free space on the disc.
- A DVD-RW Ver.1.1/1.2 recorded in the Video mode cannot be recorded or edited after finalization, but if you format the disc by erasing all the content, you can again record on this disc.
- A finalized disc may not play because of the condition of the DVD or the compatibility with the player used for playback.
- Some players may not playback the discs recorded with this unit. We cannot guarantee the playback using other players.

On Video CDs

Sound and movie can be played on this DVD in the same way as an audio CD.

Video CD not equipped with PBC function (Version 1.1)

Sound and movie can be played on this DVD in the same way as an audio CD.

Video CD equipped with PBC function (Version 2.0)

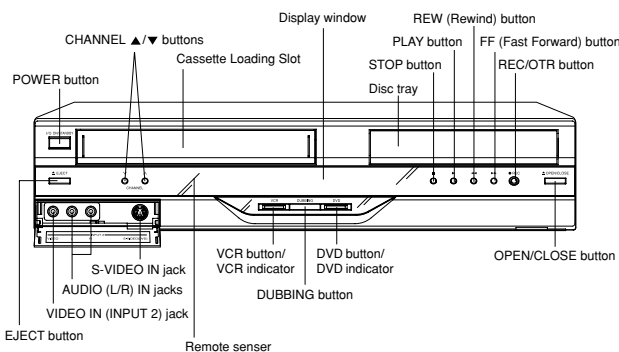
In addition to operation of a Video CD not equipped with the PBC function, you can enjoy playback of interactive software with search function by using the menu displayed on the TV screen (Menu Playback). Some of the functions described in this owner's manual may not work with some discs.

- Toshiba is not liable for any damage or loss caused directly or indirectly by the malfunction of this DVD/VCR, including, without limitation, any one of the following:
 - Failure to record contents intended to be recorded by the consumer.
 - Failure to edit contents as intended by the consumer.
 - When a DVD-RAM disc or a DVD-R disc created on this recorder is used (e.g., insertion, playback, recording or editing) in another DVD player, recorder or personal computer drive.
 - When a DVD-RAM disc or a DVD-R disc that is used in the manner described in the immediately preceding bullet point is used again in this recorder.
 - When a DVD-RAM disc or a DVD-R disc that was recorded in another DVD recorder, or in a personal computer drive is used in this recorder.
 - Discs recorded in this recorder may not operate as expected on other DVD players, recorders or personal computer drives.

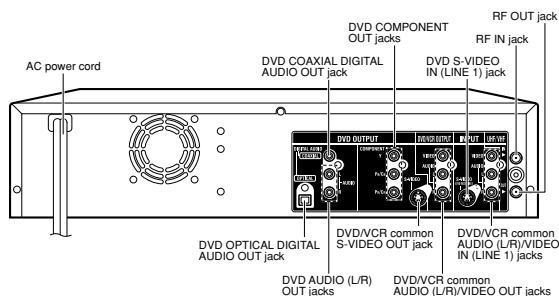
Parts and functions

Front

* This unit has a door on the front panel.
Please open it to access the S-VIDEO jack and the AUDIO (L/R)/VIDEO IN (INPUT 2) jacks.

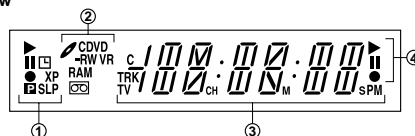


Rear



Parts and functions

Display window



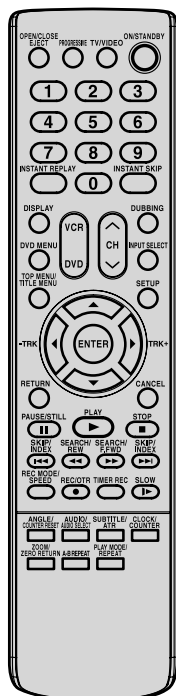
No.	Display	Description
①	▶	Lights during video tape playback.
	⏸	Video tape is temporarily stopped.
	●	Lights during video tape recording.
	⏮	Progressive scanning mode.
	⏭	Timer recording display.
	XP/SP/SLP	4 DVD recording modes. XP, SP, LP or SLP can be selected in turn by pressing the REC MODE/SPEED repeatedly.
	SP/SLP	2 VCR recording modes. SP or SLP can be selected in turn by pressing the REC MODE/SPEED repeatedly.
②	CD	Appears when a CD is inserted.
	CD-R	Appears when a CD-R is inserted.
	CD-RW	Appears when a CD-RW is inserted.
	DVD	Appears when a DVD-Video is inserted.
	DVD-R	Appears when a DVD-R is inserted.
	DVD-RW	Appears when a DVD-RW is inserted.
	RAM	Appears when a DVD-RAM is inserted.
	VR	Appears when a DVD-RW in VR mode is inserted. When the disc is set to video mode, VR does not appear.
	⏮	Video tape is in the unit.
③	10:00	Clock display (Colon [:] flashes).
	01+00m00s	Counter display in hour/minute/second for VCR/DVD, minute/second for CD.
	C 36CH	Cable TV channel display.
	2CH	TV channel display.
	TRK 002	Track number display for CD.
	TV	Appears when the tuner built into this unit is not selected. When you press TV/VIDEO disappears.
	PM	Display for afternoon (out in the morning).
	L1/L2	The external input channel (L1 or L2) display.
	Err	Error display.
④	▶	Lights during playback of DVD and CD. Flashes in auto resume.
	⏸	DVD or CD is temporarily stopped.
	●	Lights during DVD recording.

NOTE:

Some discs may not playback correctly, or chapter number, playback time, etc may not be displayed.

Parts and functions

Remote control

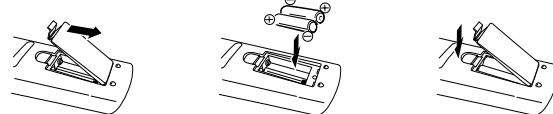


		Page
OPEN/CLOSE	Opens or Closes the tray.	33
EJECT	Ejects the cassette tapes.	48
PROGRESSIVE	Activates the progressive scanning mode.	47
TV/VIDEO	Select to operate TV/VIDEO	22, 55
ON/STANDBY	Turns power on/off.	22
0-9	Direct channel selection of TV	54
	Setting input	37, 74
	Entering a password	25
INSTANT REPLAY	Repeats playback between the section played 10 seconds before and present section.	38
INSTANT SKIP	Skips commercial breaks.	37, 50
DISPLAY	Displays VCR or DVD operation status.	35, 51
DVD	Switches to operation between VCR and DVD.	33, 49, 77, 78
VCR		
CH ▲/▼	Channel selection for the connected TV or VCR	54
DUBBING	Copies VCR to DVD or DVD to VCR.	77
DVD MENU	Displays the menu of the DVD disc.	39
INPUT SELECT	Switches the connected TV to external inputs.	79
TOP MENU/TITLE MENU	Selects titles of a DVD disc.	34, 39, 42, 63
SETUP	Display the setup menu	23, 57
▲ / ▼	Cursor buttons	23, 33, 37, 57
TRK +/-	Manual tracking in the playback mode for VCR	50
◀ / ▶	Cursor buttons	33, 37
ENTER	Option selection in the menu	23, 33, 37, 57
RETURN	Close the menu window.	23, 45
CANCEL	Deletes the Timer recording program.	59
	Cancels input data in the setting mode.	25
PAUSE/STILL	Still picture/Recording pause on/off	36, 50
PLAY	Playback	33, 49
STOP	Stop	33, 49, 55
SKIP	Skips chapters in the forward or reverse direction	36
INDEX	Searches for the INDEX mark of a tape	51
SEARCH ◀/REW	Rewind/Review playback	36, 49, 50
SEARCH ▶/F.FWD	Fast Forward/Forward search playback	36, 49, 50
REC MODE/SPEED	Selects the recording mode.	54, 56
REC/OTR	Recording	54, 56, 79
TIMER REC	Sets the unit to start recording at a preset time.	59
SLOW	Slow motion playback	36, 50
ANGLE	Changes playback angle.	40
COUNTER RESET	Resets the counter to 00H 00M 00S	51
AUDIO	Switches sound between mono and stereo.	61
AUDIO SELECT	Changes the language of the DVD.	41
SUBTITLE	Selects subtitles of the DVD disc.	41
ATR	Digital AUTO TRACKING	50
CLOCK/COUNTER	Changes the front panel display mode.	51
ZOOM	Zoom (for DVD/Video CD)	40
ZERO RETURN	Stops the tape when the counter reaches 00H 00M 00S	51
A-B REPEAT	Repeats playback between A and B.	38
PLAY MODE	Selects the playback mode.	37
REPEAT	Repeats playback.	38, 50

Parts and functions

Inserting Batteries into the Remote Control:

- 1 Open the battery compartment cover in the direction of the arrow.
- 2 Install two "AAA" batteries, paying attention to the polarity diagram in the battery compartment.
- 3 Replace the compartment cover.



Caution:

Never throw batteries into a fire.

Notes:

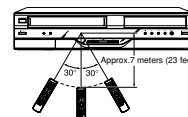
- Be sure to use AAA size batteries.
- Dispose of batteries in a designated disposal area.
- Batteries should always be disposed of with the environment in mind. Always dispose of batteries in accordance with applicable laws and regulations.
- If the remote control does not operate correctly, or if the operating range becomes reduced, replace batteries with new ones.
- When necessary to replace batteries in the remote control, always replace both batteries with new ones.
- Batteries should always be used new and used batteries in combination.
- Always remove batteries from remote control if they are dead or if the remote control is not to be used for an extended period of time. This will prevent battery acid from leaking into the battery compartment.

Remote control basics

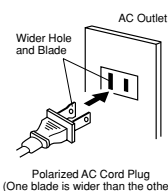
- Press **ON/STANDBY** to turn the DVD/VCR on or off.
- Press **CH ▲** or **CH ▼** to move through the channels one channel at a time.
- The **▲/▼/▶/◀** are also used to navigate on-screen menu system.
- You can directly access specific channels using **numeric keys**.
- Each press of **DVD** or **VCR**, switches the screen between the DVD screen (DVD mode) and the VCR screen (VCR mode).

Operation

- Aim the remote control at the remote sensor and press control buttons to operate.
- Operate the remote control within 30° angle on either side of the remote sensor, up to a distance of approximately 7 meters (23 feet).



Power Source



TO USE AC POWER SOURCE

Use the AC polarized line cord provided for operation on AC. Insert the AC cord plug into a standard 120V 60Hz polarized AC outlet.

NOTES:

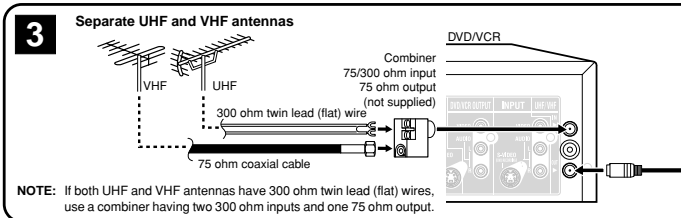
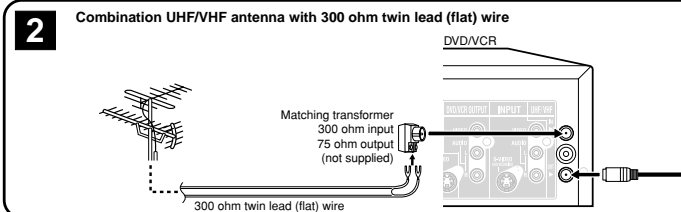
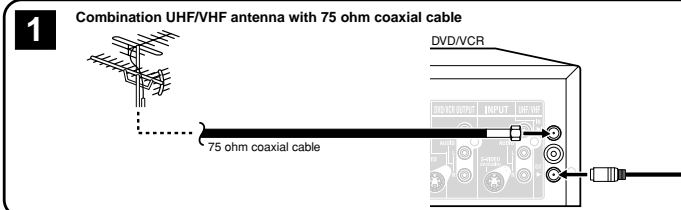
- Never connect the AC line cord plug to other than the specified voltage (120V 60Hz). Use the attached power cord only.
- If the polarized AC cord does not fit into a non-polarized AC outlet, do not attempt to file or cut the blade. It is the user's responsibility to have an electrician replace the obsolete outlet.
- If you cause a static discharge when touching the unit and the unit fails to function, simply unplug the unit from the AC outlet and plug it back in. The unit should return to normal operation.
- If the AC cord plug is plugged in for the first time, wait for approximate 3 minutes before operating the unit.

Antenna connections

If you are using an antenna system, follow these instructions. If you are a Cable TV subscriber, skip ahead to page 18 for the proper connections.

ANTENNA TO DVD/VCR CONNECTION

The DVD/VCR must be connected "between" the antenna and the TV. First, disconnect the antenna from the TV and connect it to the DVD/VCR. Then connect the DVD/VCR to the TV. Below are 3 common methods of connecting an antenna system to a DVD/VCR. Find the type of antenna system you are using and follow the connection diagram.



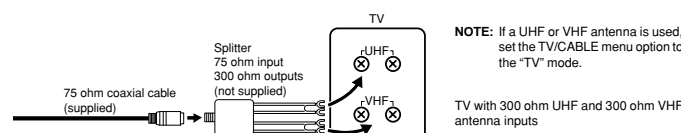
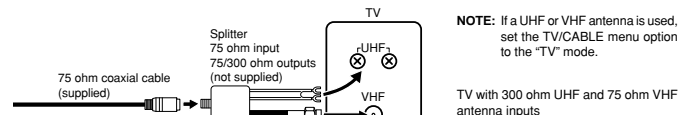
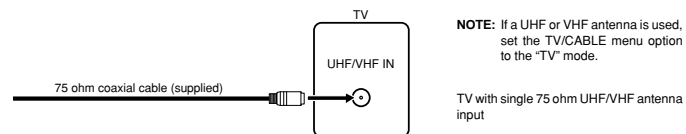
NOTES:

- A clear picture will not be obtained by the DVD/VCR unless the antenna signal is good. Connect the antenna to the DVD/VCR properly.
- For better quality recording, an indoor antenna or a telescopic antenna is not recommended. The use of an outdoor type antenna is required.
- If you are not sure about the connection, please refer to qualified service personnel.

Antenna connections

DVD/VCR TO TV CONNECTION

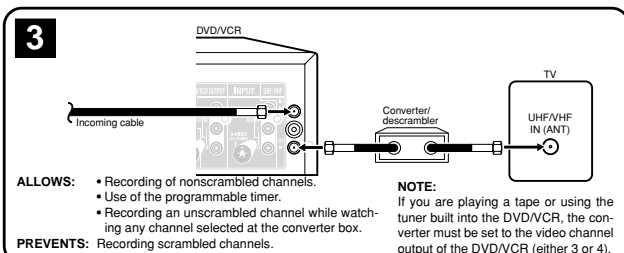
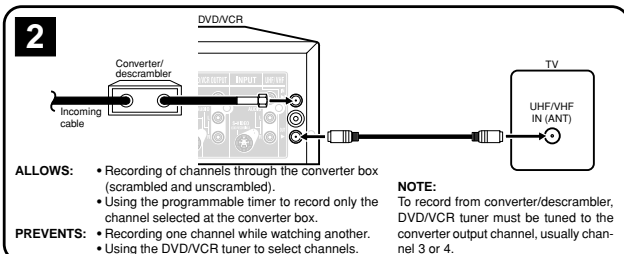
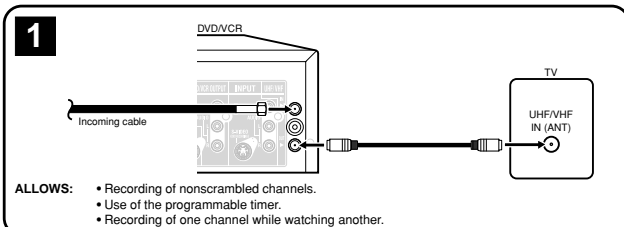
After you have connected the antenna to the DVD/VCR, you must connect the DVD/VCR to the TV. Below are 3 common methods of connecting your DVD/VCR to a TV. Find the type of TV you are using and follow the connection diagram. This DVD/VCR has a single 75 ohm output for connection to a TV. If your TV has separate UHF and VHF antenna inputs (numbers 2 and 3 below), use a splitter to connect the DVD/VCR to the TV for UHF and VHF reception.



The unauthorized recording, use, distribution, or revision of television programs, videotapes, DVDs and other materials, is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and/or criminal liability.

Cable TV connections

Many cable companies offer services permitting reception of extra channels including pay or subscription channels. This DVD/VCR has an extended tuning range and can be tuned to most cable channels without using a cable company supplied converter box, except for those channels which are intentionally scrambled. If you subscribe to a special channel which is scrambled, you must have a descrambler box for proper reception.

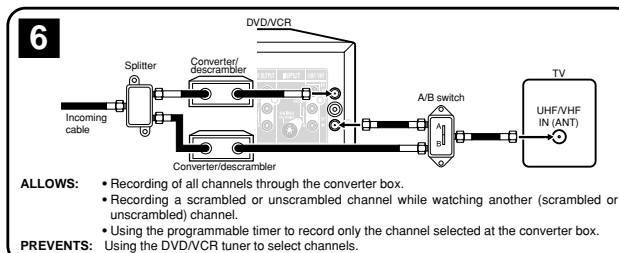
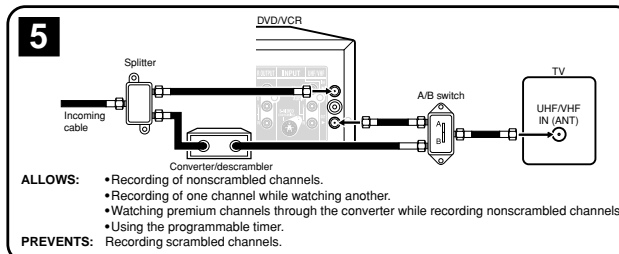
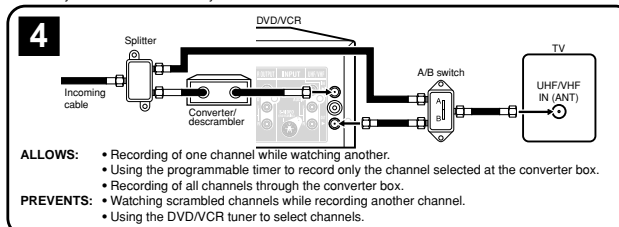


NOTE: Whenever a converter/descrambler box is placed before the DVD/VCR, you must tune the DVD/VCR to the output of the converter/descrambler box, usually channel 3 or 4.

Cable TV connections

IMPORTANT: Make sure the TV/CABLE menu option is set to the "CABLE" mode.

This DVD/VCR cannot receive scrambled programs since it does not contain a descrambler. In order to receive scrambled programs, your existing descrambler must be used. Descrambler boxes are available from cable companies. Consult your local cable company for more information concerning connection to their descrambler equipment. There are many ways to connect your DVD/VCR to a cable system. Below are six common methods of connection.



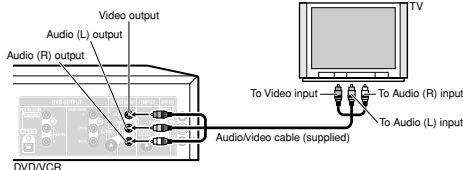
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Connections with the TV or audio component

The exact arrangement you use to interconnect various video and audio components to the DVD/VCR is dependent on the model and features of each component. Check the Owner's Manual provided with each component for the location of video and audio inputs and outputs.

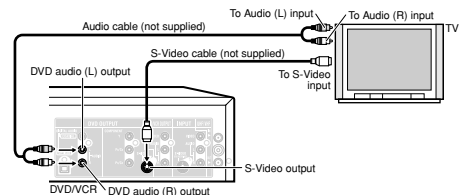
Connect to a TV with Audio/Video output

You can enjoy playback by connecting the unit to a TV. Connect the unit to a TV equipped with audio input (L/R) and video input jacks using the supplied audio/video cable.



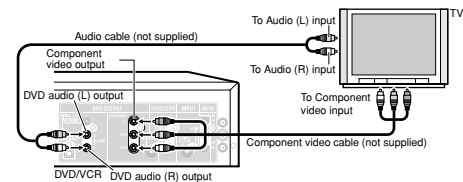
Connect to a TV with S-Video output

If your TV has an S-Video input, you can get higher quality by connecting it with the S-Video output of the unit using the S-Video cable instead of connecting the video input of the TV to the video output jack of the unit.



Connect to a TV with Component video output (for DVD/CD playback)

You can enjoy the highest quality picture by connecting the unit's component video out jacks to the component video input jacks of your TV, with component video cables (not supplied).



NOTES:

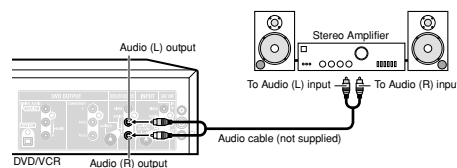
- When connecting to a TV using the video or S-Video jack, make sure that the progressive indicator on the display window is not lit. If it is lit, the video and S-Video outputs do not feed the correct signals and you cannot see any picture. To turn off the progressive indicator, make the progressive scanning mode inactive (see page 47).
- If the component video input jacks on a TV are the BNC type, use an adapter to convert the RCA jacks from the component video cables to BNC (not supplied).

The unauthorized recording, use, distribution, or revision of television programs, videotapes, DVDs and other materials, is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and/or criminal liability.

Connections with the TV or audio component

Connect to a stereo amplifier with audio output

You can enjoy high quality audio by connecting the audio output to your amplifier. Connect the audio output jacks to any line-level inputs (such as AUX, DVD, CD, etc.) of an audio amplifier.



Connect to an AV Amplifier with built-in digital surround

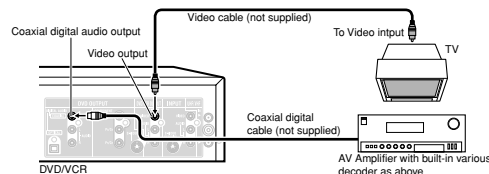
If you are using an Amplifier with a built-in digital surround as follows, you can enjoy the various audio systems such as Dolby Digital and DTS by using the optical or coaxial digital output.

Use this connection to connect an:

- AV amplifier with built-in "Dolby Digital decoder"
- AV amplifier with built-in "DTS decoder"

NOTE:

You may connect to a TV with a component video cable (not supplied) or S-Video cable (not supplied) instead of a video cable (not supplied).



Connecting the optical digital cable

You may connect to an AV Amplifier with an optical digital cable (not supplied) instead of a coaxial digital cable.

When you connect the optical digital cable (not supplied), remove the dust protection cap from the rear panel. When not using the optical digital cable, attach the dust protection cap to protect against dust.

NOTES:

- The DVD OUTPUT jacks (OPTICAL, COAXIAL, AUDIO L/R and COMPONENT) are useful only for DVD section. The VHS signal is output only from the S-Video output jack, composite jacks (DVD/VCR OUTPUT) and UHF/VHF OUT.
- When you make the connections above, do not set DOLBY DIGITAL to DOLBY DIGITAL or DTS to ON on the AV amplifier. If you do, a loud noise will suddenly come out from the speakers, affecting your ears or causing the speakers to be damaged.
- Caution for the optical digital audio output connector: Do not connect to an amplifier (with an optical digital input connector) which does not contain a Dolby Digital or DTS decoder. Otherwise, any attempt to play DVDs may cause such a high level of noise that it may be harmful to your ears and damage your speakers.
- DTS audio will be output only from the COAXIAL or OPTICAL output. To hear DTS audio, DTS-Decoder is necessary.
- When playing DTS-encoded CDs, only noise will be heard from the speakers or analog stereo outputs.
- Some DTS decoders which do not support DVD-DTS interface may not work properly with the unit.
- The optical or coaxial digital output jack output sounds in the bitstream.

Auto clock setting / Setting the video channel

Auto clock setting

Preparation:

You must connect the antenna or cable before connecting the AC cord to the power source.

Wait at least 3 minutes with the power turned off, after the antenna or cable is connected, for the auto clock feature to activate.

After the clock is set automatically, you may have to set the time zone and daylight saving time. (See page 26.)

Press **ON/STANDBY** to turn on the DVD/VCR after the auto clock operation completed.

- When shipped from factory, the "AUTO CLOCK" option is set to "ON" position.
- If you turn the DVD/VCR on during auto clock setting, the clock is not set.
- Depending on the reception condition, auto clock setting may take approx. 30 minutes.
- After a power failure or disconnection of the power plug, the clock will be lost. In this case, wait 3 minutes before turning the DVD/VCR on.
- With cable box connection, if the auto clock setting is unsuccessful, select the PBS channel carrying the XDS information, then turn the DVD/VCR off. After 3 minutes, turn the DVD/VCR on.
- If the clock is not set automatically, set the clock manually. (See page 26.)

Setting the video channel

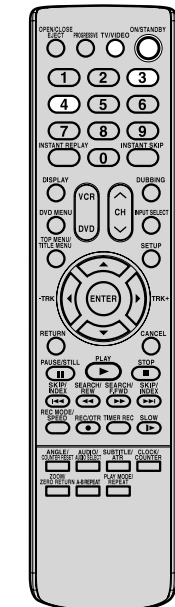
To view playback of a recorded tape or DVD disc, or to watch a program selected by the VCR's channel selector, the TV must be set to channel 3 or 4 (video channel).

When a TV is connected with the 75 ohm coaxial cable only:

- Press and hold 3 or 4 on the remote control for 3 seconds in the standby mode to select CH 3 or 4. The selected channel number will flash on the display for about 4 seconds.
- Turn ON the TV and set to CH 3 or 4 to correspond with the channel selected in step 1.
- Press **ON/STANDBY** to turn on the DVD/VCR.
- Press **TV/VIDEO** to select the VIDEO position. The TV indicator will disappear in the display.
- Select any channel to receive a TV station in your area. The channel number will appear on the screen for about 4 seconds.

For a push-button TV tuner

If CH 3 or 4 corresponding to the video channel cannot be tuned on your TV, proceed as follows: set the VCR 3/4 channel selector and the TV to CH 3 or 4, playback a prerecorded tape and tune the TV to receive a sharp color picture from the video cassette recorder. Refer to your TV owner's manual for details.



NOTES:

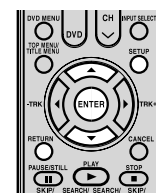
- When shipped from factory, the video channel is set to CH 3.
- If the unit does not operate properly, or there is no key operation from the unit and/or the remote control: Static electricity, etc., may affect the operation. Disconnect the AC power cord once, then connect it again.

SETUP MENU

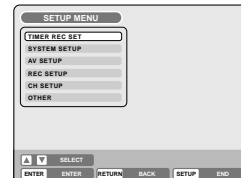
The **SETUP MENU** consists of several menus where you can make various settings concerning language, audio functions, and images. In addition, this menu includes a clock, channel and other things that require setting just after purchase. For details of each menu, see the corresponding section in this chapter.

Using the SETUP MENU

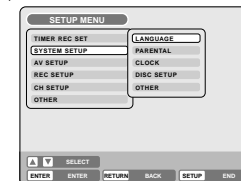
The following example shows the basic setting procedure of the **SETUP MENU**. The remote control keys that operate the **SETUP MENU** are displayed at the bottom of the screen.



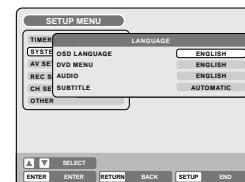
- Press **SETUP** while the DVD or video tape is stopped. The **SETUP MENU** screen will appear.



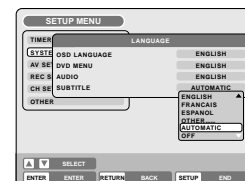
- Press **▲** or **▼** to select the desired menu and press **ENTER**. The submenu screen of the selected menu will appear.



- Press **▲** or **▼** to select the desired submenu and press **ENTER**. The screen for the selected submenu will appear.



- Press **▲** or **▼** to select the desired item you want, and press **ENTER**. Selectable items will be listed.



- Press **▲** or **▼** to select the desired item and press **ENTER**. This completes the setting procedure.
 - To return to the previous screen, press **RETURN**.
 - To close the **SETUP MENU**, press **SETUP**.

NOTES:

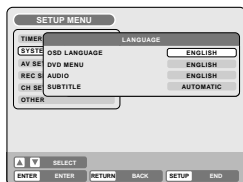
- For items that require different operations from the basic setting procedure, the setting procedure is described in each individual section.
- The item which is indicated by blue color cannot be selected.

Setting the language

You can choose the language of the menu screen, DVD menu, DVD audio and subtitles.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "LANGUAGE" from "SYSTEM SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



OSD LANGUAGE

You can set the language for on screen display. Select "OSD LANGUAGE" and select the language from the below.

Selectable languages:

ENGLISH, FRANCAIS, ESPANOL

DVD MENU

When several menu languages are recorded on a DVD, you can select the language to be used for the DVD menu. Select "DVD MENU" and select the language from the below.

Selectable languages:

ENGLISH, FRANCAIS, ESPANOL

The selected language is the first priority menu language.

OTHER

If you want to select another language, before pressing **ENTER**, input the language code by using the **numeric keys**. (See the Language code list on page 82). Then press **ENTER**.

- If you input a wrong number, press **CANCEL**.

AUDIO

When several audio languages are recorded on a DVD, you can select the audio language to be played back. The selected language remains in effect after the power is turned off or the disc is replaced. Select "AUDIO" and select the audio language from the below.

Selectable languages:

ENGLISH, FRANCAIS, ESPANOL

The language you have selected will play if it is recorded on the disc.

ORIGINAL

The unit will select the first priority language of each disc.

OTHER

If you want to select another language, before pressing **ENTER**, input the language code by using the **numeric keys**. (See the Language code list on page 82). Then press **ENTER**.

- If you input a wrong number, press **CANCEL**.

NOTE:

If the selected language is not recorded on the disc, the first-priority language is selected.

SUBTITLE

When several subtitles languages are recorded on DVD, you can select the language to be used for the subtitles. The selected language remains in effect after the power is turned off or the disc is replaced. Select "SUBTITLE" and select the menu language from the below.

Selectable languages:

ENGLISH, FRANCAIS, ESPANOL

The subtitle is displayed with the selected language if it is recorded on the disc.

OTHER

If you want to select another language, before pressing **ENTER**, input the language code by using the **numeric keys**. (See the Language code list on page 82). Then press **ENTER**.

- If you input a wrong number, press **CANCEL**.

AUTOMATIC

- The unit will automatically select the same language in the AUDIO setting.
- When the unit selects the same language as the AUDIO setting, the subtitles will not appear during playback.
- When you do not use the same language as the AUDIO setting, the subtitles will appear during playback.

OFF

Subtitles do not appear.

NOTE:

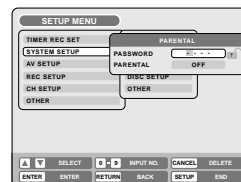
If the selected language is not recorded on the disc, the first-priority language is selected.

Setting the parental control

Some discs are specified as not suitable for children. This unit can prevent playback of such discs.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "PARENTAL" from "SYSTEM SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



Selecting parental control

Select "PARENTAL" and select the parental control level from the below.

Level Off: Parental control is turned off.

Level 1: Adult discs and general discs (R-rated discs included) cannot be played back.

Level 2 to 3: Adult discs and R-rated discs cannot be played back.

Level 4 to 7: Adult discs cannot be played back. (Level 4 to 7 discs contain content children age 15 and younger may not see.)

Level 8: All discs can be played back without restriction.

Select from level 1 to level 8.

On a scale of 1-8, "1" is the most restrictive.

To lock the selected parental control level

1 To lock the selected parental control level, press **▲** or **▼** to select "PASSWORD".

2 Use the **numeric keys** to input a 4-digit password.

- If you input a wrong number, press **CANCEL**.
- Be sure to remember this number!

3 Press **ENTER**.

1234 change to 1234

To cancel the locked parental control level

1 Select "PASSWORD" shown in step 1 of the above section and use the **numeric keys** to input the password.

2 Press **ENTER**.

The locked mark "▲" will change to an unlocked mark "■". Then, you can change the parental control level, or enter a new password.

NOTES:

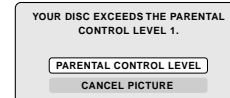
- The selected level will apply to operations executed after this.
- The unit cannot restrict playback of some discs.
- Some discs may not be encoded with specific rating level information though its disc jacket says "adult". Parental control will not work with those discs.
- If you forget your password, open the disc tray; if there is a disc inside then remove it and close the tray. To reset the code press and hold **number 7** on the remote control, then press and hold **STOP** on the front panel at the same time. The On-Screen Display will show "PARENTAL UNLOCK". You can now set a new password.

Temporarily cancelling parental control

Parental control can temporarily be cancelled with some DVDs.

1 Playback a DVD. (See page 33.)

2 If the DVD disc has been designed to temporarily cancel the rating level, the screen that follows the "READINGS" screen will change. If you select "YES" with the **ENTER**, the message "YOUR DISC EXCEEDS THE PARENTAL CONTROL LEVEL 1." (e.g.) will then appear.



3 If you wish to cancel the set rating level temporarily, select "PARENTAL CONTROL LEVEL" with **▲** or **▼**, then press **ENTER**. If the password has not been selected, the password input screen will appear. Alternatively, if the password has not been set, playback will commence. If you don't know (or have forgotten) the password, select "CANCEL PICTURE". The setting screen will disappear. Press **OPEN/CLOSE** to remove the disc.

4 Use the **numeric keys** to input the password.

- To interrupt the input process, press **RETURN**.

5 Press **ENTER**.

6 Playback will commence if the entered password was correct.

NOTE:

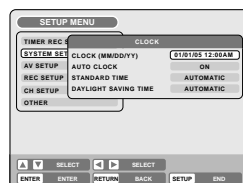
This temporary cancellation of the rating level will remain active until the disc is ejected. When the disc is ejected, the original rating level will be set again automatically.

Setting the clock

The clock is set to the correct time automatically, but it can also be set manually. The clock can be set for daylight saving time and time zone.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "CLOCK" from "SYSTEM SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



CLOCK (manually)

You can manually set the date, year and present time with the remote control.

Ex.: Setting the clock to "10:20AM" March, 30th, 2005.

1 Select "CLOCK" and press **ENTER**.

01/05 12:00AM

2 Select the desired items using **▲** or **▼** (month, date, year, hour, minute and AM/PM), then press **ENTER**.

3 Press **▲** or **▼** to set the value of the selected item.

03/30/05 10:20AM

4 Repeat steps **2** and **3** to set the date, year and present time, and press **ENTER**. The SETUP MENU will close. This completes clock time setting.

AUTO CLOCK

You can automatically set the clock by turning "ON" the AUTO CLOCK function.

When you want to set the auto clock function to "OFF", select "AUTO CLOCK", press **ENTER** and select "OFF". For more information see page 22.

STANDARD TIME (Time zone)

In the rare event that you live within the broadcast range of two stations in two different time zones, the DVD/VCR may recognize the wrong station for the auto clock set. To correct the situation:

Select "STANDARD TIME" and select the time zone from the below.

Selectable time zones and correction times

ATLANTIC: GMT - 4 hours
(GMT: Greenwich Mean Time)

EASTERN: GMT - 5 hours

CENTRAL: GMT - 6 hours

MOUNTAIN: GMT - 7 hours

PACIFIC: GMT - 8 hours

ALASKA: GMT - 9 hours

HAWAII: GMT - 10 hours

AUTOMATIC: AUTO SET

NOTES:

- When shipped from the factory, the "STANDARD TIME" is set to "AUTOMATIC".
- After making the auto clock setting, in some cases the clock may display another time zone. You can correct the clock by selecting your time zone setting above.
- When the clock is not set or you set the clock manually, the time zone setting is not available.

DAYLIGHT SAVING TIME

You can set the clock to daylight saving time automatically or manually.

To select daylight saving time, select "DAYLIGHT SAVING TIME" and select "ON", while to cancel the daylight saving time, select "OFF".

ON: For manual setting (forward 1 hour)
OFF: For manual setting (back 1 hour)
AUTOMATIC: For automatic setting (read XDS in the signal)

NOTES:

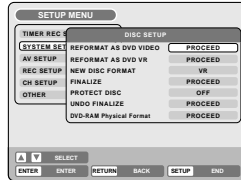
- When you want to set daylight saving time, on the first Sunday in April you set it to "ON", and on the last Sunday in October you set it to "OFF".
- When shipped from the factory, the "DAYLIGHT SAVING TIME" option is set to "AUTOMATIC".
- When the clock is not set, the daylight saving time setting is not available.
- When there is no daylight saving time in your area, always select "OFF".

Setting the disc

You can format, protect, or finalize a disc.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "DISC SETUP" from "SYSTEM SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



REFORMAT

You can format a recorded DVD-RAM/RW. Check the content of the disc before format. If you format the disc, the recorded content of the disc will be erased.

To format a disc in the Video mode, select "REFORMAT AS DVD VIDEO", and to format it in the VR mode, select "REFORMAT AS DVD VR". You cannot select "REFORMAT AS DVD VIDEO" when DVD-RAM is inserted. The screen below will appear.



When you select "START" and press **ENTER**, format will start. The screen below will appear.



When you select "CANCEL" and press **ENTER**, the DISC SETUP screen will appear.

NOTES:

- You cannot format Ver. 1.0 DVD-RW and DVD-R.
- You cannot format a disc if the disc protection is "ON". In such a case, be sure to cancel the disc protection (see page 28) before format.
- You cannot format a DVD-RAM in the Video mode.

NEW DISC FORMAT

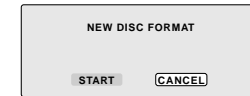
If you insert an unused DVD-RW disc, the disc is automatically formatted.

If you use the DVD-RW (Ver.1.1/1.2), you can select the mode to be used for automatic format. Select "NEW DISC FORMAT" and select the mode from the list below.

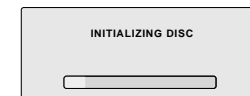
VR: Format the disc in the VR mode.

VIDEO: Format the disc in the Video mode.

When you insert an unused disc, the following message screen will appear.



When you select "START" and press **ENTER**, format will start. The screen below will appear.



When you select "CANCEL" and press **ENTER**, the normal TV screen will appear.

NOTE:

If a recorded disc has scratches or contamination on it, the "NEW DISC FORMAT" screen may appear. If this happens, select "CANCEL".

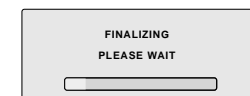
FINALIZE

To play a DVD disc recorded on this unit you must finalize the disc to insure compatibility with other DVD players. In addition if you are using a DVD-RW disc you must record in Video mode.

When "FINALIZE" is selected, the screen below will appear.



When you select "START" and press **ENTER**, finalization will start. The screen below will appear.



When you select "CANCEL" and press **ENTER**, the DISC SETUP screen will appear.

Setting the disc / Other (SYSTEM SETUP)

NOTES:

- During the finalization the cursor will move repeatedly. When the finalization finished, "DISC FINALIZED" will appear.
- The finalization process may require a few minutes to about 1 hour according to disc type or the amount of free space on the disc.
- You can record or edit a finalized DVD-RW (in VR mode) by cancelling the finalizing, but you cannot do these operations with a DVD-RW (Video mode), or with a DVD-R.
- You cannot playback a disc recorded on VR mode on a unit that does not support DVD-RW.
- Even if you finalize a disc in the Video mode, the disc cannot be played back in some DVD players.
- A DVD-R disc cannot be named after it is finalized.

PROTECT DISC

You can protect a disc to prevent the content recorded on it from being erased, edited or re-recorded. Only DVD-RAM and DVD-RW (in VR mode) can be protected.

Select "PROTECT DISC" and select "ON" to protect the disc.

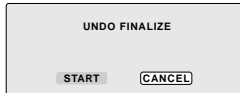
To cancel the disc protection, select "OFF".

UNDO FINALIZE

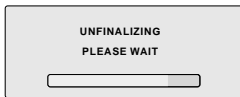
You can cancel the finalization of a finalized DVD-RW (in VR mode).

You cannot cancel the finalization for discs other than above. You can record or edit on a disc whose finalization has been cancelled.

Select "UNDO FINALIZE", and the screen below will appear.



- When you select "START" and press **ENTER**, the cancelling finalization will start. The screen below will appear.



- When you select "CANCEL" and press **ENTER**, the DISC SETUP screen will appear.

NOTES:

- During the cancelling finalization the cursor will move repeatedly.
- The cancelling finalization process may require a few minutes to about 1 hour according to disc type or the amount of free space on the disc.
- When the disc's finalization cannot be cancelled, you cannot select "UNDO FINALIZE".

DVD-RAM Physical Format

Physically formats a DVD-RAM disc. Whenever you use a new disc for the first time, be sure to format it.

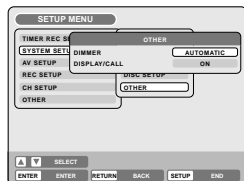
NOTE:

The physical format process may require about 1 hour according to disc condition.

This section describes the other setting in SYSTEM SETUP

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "OTHER" from "SYSTEM SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



DIMMER (Brightness of the display window)

You may adjust the brightness or turn off the display on the front panel of the unit. Select "DIMMER" and select the display window status from the below.

AUTOMATIC: When the power is on, the display window appears bright. When the power is off, it appears dark.

DIM: The window display always appears dark.

OFF: When the power is on, the display window appears dark. When the power is off, it is turned off.

DISPLAY/CALL (Turning the screen display "ON" or "OFF")

You can turn off the screen display that is output to the TV screen by this unit. Select "DISPLAY/CALL", and select "ON" or "OFF".

ON: The screen display appears.

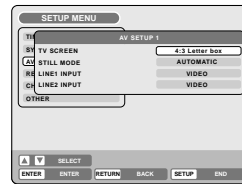
OFF: Nothing but the SETUP MENU and error messages appear.

Setting the screen

This section describes settings about the screen.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "AV SETUP 1" from "AV SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



TV SCREEN

You can select the TV screen size to suit the screen image.

Select "TV SCREEN" and select screen size from the below.

4:3 Pan scan

It displays a wide picture across the whole screen with left and right edges automatically cut off.

4:3 Letter box

Select this mode when connecting to a conventional TV. When playing back a wide screen DVD disc, it displays a wide picture with black bands at the top and bottom of screen.

16:9

Select this mode when connecting to a wide-screen TV. A wide-screen picture is displayed in full size.

NOTE:

If the DVD disc is not formatted in the pan scan format, it displays a 4:3 aspect ratio.

STILL MODE

You can set the type of image displayed on the TV screen when the playback of the DVD disc is still.

Select "STILL MODE" and select the image to be displayed from the below.

AUTOMATIC

The field still or frame still is automatically selected. (For normal use.)

STILL BY FRAME

The frame still is set.

Note for the field still and frame still:

- (with 480i interlaced scanning mode)
- Field* still (240 lines)
Since only one field (half of the video information) is shown on the TV screen, the picture appears rough but does not shake.
- Frame* still (480 lines)
Two fields are alternatively shown on the TV screen. The picture shakes but the resulting picture quality is superior to the field still pictures.

Field*: A field refers to the video information in one-half of a frame. 1 frame (sequence) consists of 2 fields.

Frame*: A frame refers to the total area occupied by each picture on the TV screen.

LINE1 INPUT/LINE2 INPUT

This unit comes with an S-Video input jack and Video input jack. When you use an S-Video or Video input jack, you must select the input mode.

Select "LINE1 INPUT" ("LINE2 INPUT") and select the mode from the below.

S-VIDEO

The video signal is input only from the S-Video input jack.

VIDEO

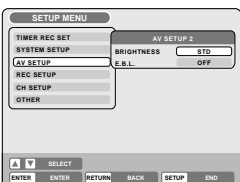
The video signal is input only from the video input jack.

Setting the image quality / Setting the audio

This section describes image quality settings.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "AV SETUP 2" in "AV SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



BRIGHTNESS

You can control the brightness level of the image. Select "BRIGHTNESS" and select the level from the below.

- MAX:** The image becomes brighter.
- STD:** The image is of standard brightness.
- MIN:** The image becomes darker.

E.B.L.

To select the black level of playback pictures, set your preference and monitor's ability.

- ON:** Enhanced grey scale (0 IRE cut off)
- OFF:** Standard grey scale (7.5 IRE cut off)

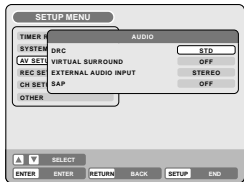
Note:

The E.B.L. function only works when playing back DVD-Video, DVD-RAM/RW/R or Video-CDs.

This section describes audio settings.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "AUDIO" from "AV SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



DRC

DRC (Dynamic Range Control) enables you to control the dynamic range so as to achieve a suitable sound for your equipment.

Select "DRC" and select the level from the below.

- MAX:** Full dynamic range is maintained.
- STD:** Full dynamic range is reduced.
- TV:** Dynamic range is reduced.

NOTES:

- This function works only during playback of Dolby Digital recorded discs.
- When you listen to the sound from TV's speaker, we recommend that you select "TV".
- The level of Dynamic Range Reduction may differ depending on the DVD.

VIRTUAL SURROUND (Spatializer N-2-2™)

Sound that is not recorded in the surround mode will be changed to artificial surround sound and output. Select "VIRTUAL SURROUND" and select "ON" to activate the virtual surround function. To not use the virtual surround, select "OFF".

NOTE:

This function does not work with a video tape.

EXTERNAL AUDIO INPUT

The audio mode for the audio input jack can be selected, choosing either stereo or monaural. Select "EXTERNAL AUDIO INPUT" and select from the below.

- STEREO:** The sound is treated as stereo sound.
- L CH:** The sound is treated as the monaural sound of the left channel.
- R CH:** The sound is treated as the monaural sound of the right channel.

Setting the audio / Setting the recording

SAP (Second Audio Program)

This unit is fitted with an SAP broadcast system that enables you to switch to a second audio program while viewing a selected channel.

This function applies only when the program is broadcast in multiple languages through the SAP broadcast system.

Select "SAP" and select "ON" to use SAP, and to not use it, select "OFF".

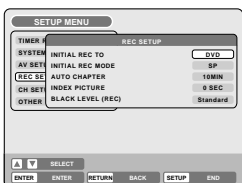
Listening to SAP

When the unit is turned on or a channel selection is made, make certain the letters "SAP" appear on the screen. This means that "Second Audio Program" broadcasting is available.

This section describes recording settings.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "REC SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



INITIAL REC TO

You can select the recording media that is first displayed in the item "REC TO" on the timer recording screen. Select "INITIAL REC TO" and select "DVD" or "VCR".

INITIAL REC MODE

You can select the recording mode that is first displayed in the item "REC MODE" on the timer recording screen. Select "INITIAL REC MODE" and select XP, SP, LP, or SLP.

NOTES:

- For the DVD recording mode, see page 52. And for the VCR recording mode, see page 48.
- Even if you select the recording mode by "INITIAL REC MODE", the recording mode on the display window does not change. If you want to change the recording mode, press **REC MODE/SPEED** on the remote control.

AUTO CHAPTER

You can automatically make chapter marks on the DVD to be recorded.

Select "AUTO CHAPTER" and select the interval between chapter marks from the below.

- OFF:** The automatic chapter is not used.
- 5 MIN:** The interval is set to 5 minutes.
- 10 MIN:** The interval is set to 10 minutes.
- 15 MIN:** The interval is set to 15 minutes.
- 30 MIN:** The interval is set to 30 minutes.

INDEX PICTURE

You can set the time that the thumbnail image is registered in the title menu of DVD-RW (VR mode).

Select "INDEX PICTURE" and select from the below.

- 0 SEC:** The image of a recording start point is registered.
- 1 MIN:** The image 1 minute after a recording start is registered.
- 3 MIN:** The image 3 minutes after a recording start is registered.

NOTE:

You cannot select the thumbnail image for Video mode.

BLACK LEVEL (REC)

You can set the black level for when you record.

- Standard:** Records at the level of the input source.
- Enhanced:** Lowers the level 7.5IRE and records.

The unauthorized recording, use, distribution, or revision of television programs, videotapes, DVDs and other materials, is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and/or criminal liability.

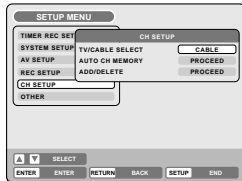
Setting the channel / Setting other items

This DVD/VCR is equipped with a channel memory feature that allows you to skip channels up or down to the next channel set in memory, hence skip over unwanted channels.

Before selecting channels, they must be programmed into the DVD/VCR's memory. In addition to normal VHF and UHF channels, this DVD/VCR can receive up to 113 Cable TV channels. To use this DVD/VCR with an antenna, set the TV/CABLE menu option to the TV mode. When shipped from the factory, this menu option is in the CABLE mode.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "CH SETUP". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.



TV/CABLE SELECT

Select "TV/CABLE SELECT" and select "TV" or "CABLE".

TV: VHF/UHF channels
CABLE: CABLE TV channels

AUTO CH MEMORY

The VCR can receive a maximum of 181 channels by presetting the channels into memory.

When you select "AUTO CH MEMORY" and press ENTER.

The AUTO CH MEMORY function will be activated. The channel display will count up and, when finished, the screen returns to normal.

ADD/DELETE (channels)

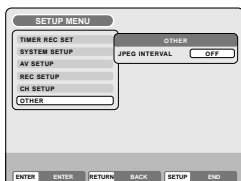
You can add the channels you want or delete the channels you do not want manually. Select "ADD/DELETE" and select "ADD" or "DEL." for each channel.

- Press CH \wedge/\vee to select the channel. The numeric keys can also be used for selection.
- When you want to delete the selected channel, press \blacktriangleright to select "DEL." and press ENTER.
- When you want to use the selected channel, press \blacktriangleleft to select "ADD" and press ENTER.

You can set the switching interval between played back images in the slide show mode.

Preparation:

- Turn ON the TV and set it to the video input mode.
- Select "OTHER". For the procedure, see steps 1 to 3 in "Using the SETUP MENU" on page 23.

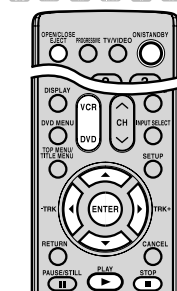


JPEG INTERVAL

You can select the interval time for JPEG slide show (page 46). Select "JPEG INTERVAL" and select the switching interval between images from the below.

- OFF: The slide show mode is not used.
- 5 SEC: The interval is set to 5 seconds.
- 10 SEC: The interval is set to 10 seconds.
- 15 SEC: The interval is set to 15 seconds.

Playback procedure



NOTES:

- If a non-compatible disc is loaded, "INCORRECT DISC", "REGION CODE ERROR" or "PARENTAL ERROR" will appear on the TV screen according to the type of loaded disc. In this case, check your disc again (See pages 9 and 25).
- Some discs may take a minute or so to start playback.
- A prohibition symbol "⊘" may appear at the upper right of the screen. This symbol means either the feature you tried is not available on the disc, or the DVD/VCR can not access the feature at this time. This does not indicate a problem with the DVD/VCR.
- When you set a single-faced disc label downwards (ie. the wrong way up) and press PLAY or OPEN/CLOSE, "READING" will appear and then it will change to "NO DISC".
- Some playback operations of DVDs may be intentionally fixed by software producers. Since this DVD/VCR plays DVDs according to the disc contents the software producers designed, some playback features may not be available. Also refer to the instructions supplied with the DVDs.
- When playing DTS-encoded Audio CDs, excessive noise will be heard from the analog stereo outputs. To avoid possible damage to the audio system, the consumer should take proper precautions when the analog stereo outputs of the DVD/VCR are connected to an amplification system.

Preparation:

- Turn ON the TV and set to the video input mode.
- Press DVD to select the DVD mode. (The DVD indicator will light.)

- Press OPEN/CLOSE. The disc tray will open.

- Insert a disc.

Disc without a cartridge
Insert with the playback side down.

Place a disc to fit the guide. If a disc is out of the guide, it may result in damage to the disc or malfunction.

DVD-RAM disc with cartridge (TYPE1/TYPE2/TYPE4)

Single sided

Turn the printed side up, and insert the cartridge into the tray frame following the direction of the arrow on the cartridge.

Double sided

Turn the desired recording/playback side up, and insert the cartridge into the tray frame following the direction of the arrow on the cartridge.

- Press OPEN/CLOSE to close the disc tray.

"READING" appears on the screen and some discs start playback automatically.

- A menu screen may appear on the TV screen, if the disc has a menu feature. In this case, press \blacktriangleleft , \blacktriangleright , \blacktriangleup , \blacktriangledown or ENTER to operate a menu feature.

- Press PLAY to start playback.

- Press STOP to end playback.

The DVD/VCR memorizes the stopped point, depending on the disc. \blacksquare appears on the screen for approx. 4 seconds. \blacksquare keeps blinking in the display until the playback is stopped completely. Press PLAY to resume playback (from the scene point).

- If you press STOP again ("⊘" appears on the screen), the DVD/VCR will clear the stopped point.

- Then press OPEN/CLOSE.

The disc tray opens.

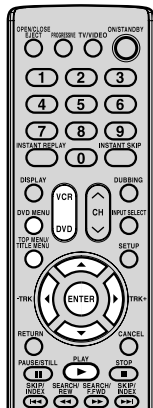
Remove the disc and press ON/STANDBY.

The disc tray closes automatically and DVD/VCR turns off.

Playback by selecting a title



When playing back a recorded disc, you can display the title menu and select the title to be played back.



NOTE:

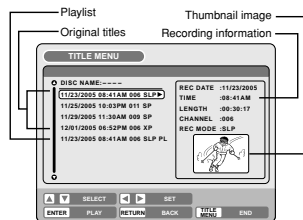
When a disc that has been recorded in the Video mode is finalized, the title menu is automatically changed that can be played back even with other DVD players. Thumbnail image and recording information will not appear in the title menu after finalizing.



Preparation:

- Turn ON the TV and set to the video input mode.
- Load a recorded DVD.
- Press DVD to select the DVD mode. (The DVD indicator will light.)

- Press TITLE MENU. The title menu will appear.

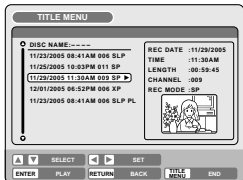


If there are many original titles and playlists...

Before pressing TITLE MENU, press DVD MENU until "VR ORG" or "VR PL" will appear on the upper right of the TV screen, then press TITLE MENU.

The first original title or playlist will be highlighted.

- Press \blacktriangleup or \blacktriangledown to select the title you want to playback.



- Press ENTER.

The selected title is played back.

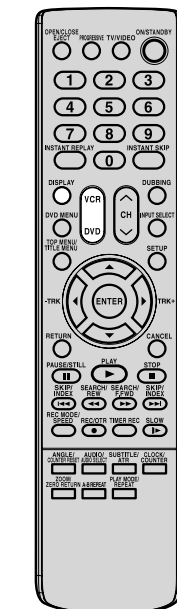
NOTES:

- If you don't display the title menu and press PLAY, the first title is played back.
- The title menu is used not only for playing back titles but also for editing various discs and titles. For details of editing operation, see page 62.
- If you create a playlist, an original title and playlist appear in the title menu. For creating a playlist, see page 63.
- In case the disc includes more than 10 titles, you can turn to the next or the previous page. Press \blacktriangleleft , then press \blacktriangledown or \blacktriangleup to display next/previous page. To return to normal use, press \blacktriangleright .
- You cannot switch to the VCR mode when the title menu is showing. Press TITLE MENU to clear the title menu, then press VCR to switch to the VCR mode.

Checking media information



Various information on the loaded disc can be displayed on the TV screen.

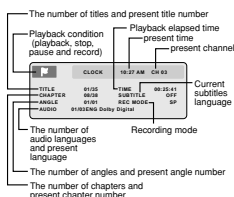


Preparation:

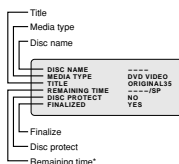
- Turn ON the TV and set it to the video input mode.
- Load the disc.
- Press DVD to select the DVD mode. (The DVD indicator will light.)

- Press DISPLAY.

Media information will appear.



- Press DISPLAY while the media information above is displayed. The next media information will appear.

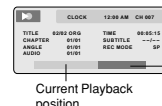


"The remaining time displayed during recording may be different from the actual remaining time. When you want to check the correct remaining time, stop recording and display the media information again.

- Press DISPLAY again while the media information above is displayed. The media information will disappear.

* If you press DISPLAY during chase playback, the information screen is displayed.

The symbols indicate that the player is in chase playback. The progress bar shows the current position of playback and the position of recording. Normally the recording position is shown as being at 100%. Items other than these appear the same as on a normal information screen.

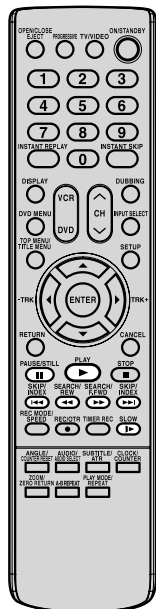


Current recording position
(Fixed at 100%)

Special playback



NOTE: There may be a slight delay between pressing the button and the function activation.



Fast forward playback

Press **SEARCH** during normal playback. Each press of **SEARCH** will increase the speed of the search (x2), (x12), (x24), (x60). (The speed of the search is increased up to only 2 steps in Audio CD.)

- To resume normal playback, press **PLAY**.

Review playback

Press **SEARCH** during normal playback. Each press of **SEARCH** will increase the speed of the search (x2), (x12), (x24), (x60). (The speed of the search is increased up to only 2 steps in Audio CD.)

- To resume normal playback, press **PLAY**.

Still playback

Press **PAUSE/STILL** during normal playback.

To resume normal playback, press **PLAY**.

Frame advance

Press **PAUSE/STILL** during still playback. One frame is advanced each time you press **PAUSE/STILL**.

To resume normal playback, press **PLAY**.

Slow motion playback

Press **SLOW** during normal playback or still playback. Each press of **SLOW** will change the speed of the slow "1/2", "1/4", "1/8".

- To resume normal playback, press **PLAY**.
- To resume the still playback, press **PAUSE/STILL**.

Locating a chapter or track

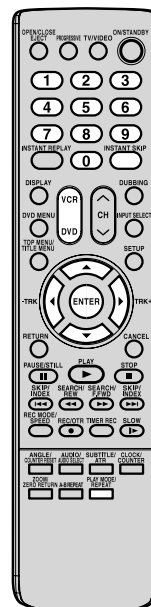
Press **SKIP** or **SKIP** during playback to locate a chapter that you want to watch. Each time you press the button, a chapter or track is skipped.

- When you press **SKIP** once, playback starts from the beginning of the current chapter or track. If you want to play the preceding chapter or track, press **SKIP** twice in quick succession.

NOTES:

- The unit is capable of holding a still video image or On screen display image on your television screen indefinitely. If you leave the still video image or On screen display image displayed on your TV for an extended period of time, you risk permanent damage to your television screen. Projection televisions are very susceptible.
- Fast forward and review playback does not work with a MP3/WMA/JPEG-CD.
- Frame advance and slow motion does not work with a CD.

Instant skip / Locating a specific scene



Instant skip

Use this function to skip commercials while you playback.

Press **INSTANT SKIP** during playback. The time jumps to a point approx. 30 seconds later and playback resumes.

NOTE: With some DVD-Video, the Commercial skip operation may not work.

Locating a specific scene

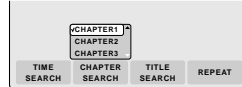
Specify the time recorded on the disc, chapter or title to playback.

- Press **PLAY MODE**. The play mode screen will appear.



- Press **TIME SEARCH**, **CHAPTER SEARCH**, or **TITLE SEARCH**, and press **ENTER**.

TIME SEARCH: Input the time to be played back.
CHAPTER SEARCH: Select the chapter number to be played back.
TITLE SEARCH: Select the title number to be played back.



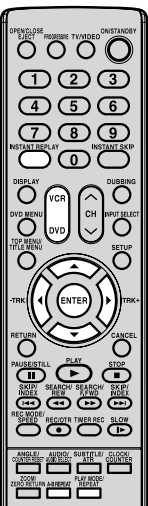
The screen above shows the display when "CHAPTER SEARCH" is selected.

- When selecting "TIME SEARCH", input the time to be played back with the **numeric keys**. When selecting "CHAPTER SEARCH" or "TITLE SEARCH", press **▲** or **▼** to select the chapter number or title number.

- Press **ENTER**. The playback starts at the point you selected.

NOTE: For "REPEAT", see "Title, Chapter repeat playback" (page 38).

Repeat playback



Instant replay

This feature can be used to repeat the last 10 seconds of viewed material, and continues to play as normal.

Press **INSTANT REPLAY** during playback. The video returns to a point 10 seconds before and playback resumes.

NOTES:

- If the time from the title top is less than 10 seconds when **INSTANT REPLAY** is pressed, the title top is repeated and then the video is played back.
- With some DVD-Video, the one touch repeat operation may not work.

A-B repeat playback

A-B repeat playback allows you to repeat material between two selected points.

- Press **A-B REPEAT** during playback. The start point is selected.

- Press **A-B REPEAT** again. The end point is selected. Playback starts at the point that you selected. Playback stops at the end point, returns to point A automatically, then starts again.

To resume normal playback press **A-B REPEAT** again. "OFF" appears on the screen.

Title, Chapter repeat playback

- Press **REPEAT**. The play mode screen will appear.



- Press **TIME SEARCH**, **CHAPTER SEARCH**, or **TITLE SEARCH**, and press **ENTER**.



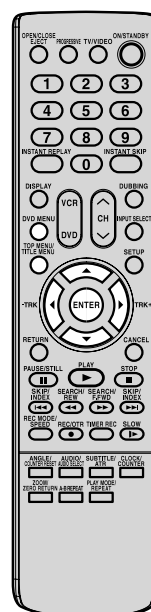
- Press **▲** or **▼** to select "OFF", "CHAPTER" or "TITLE".
OFF: Playback is not repeated.
CHAPTER: The chapter in playback is repeatedly played back.
TITLE: The title in playback is repeatedly played back.

- Press **ENTER**. To cancel the repeat playback, select "OFF" in step 3.

NOTES:

- Some discs may not work with the repeat operation.
- In A-B repeat mode, subtitles near point A or B may not appear.
- A-B repeat does not work during the Title and the Chapter repeat playback.
- You may not be able to set A-B repeat, depending on the scenes of the DVD.
- A-B repeat and Title, Chapter repeat does not work with a MP3/WMA/JPEG-CD and Video CD.

Title selection / DVD menu



Title selection

Two or more titles are recorded on some discs. If the title menu is recorded on the disc, you can select the desired title.

- Press **TOP MENU/TITLE MENU** during playback. The title menu appears on the screen.
 - Press **TOP MENU/TITLE MENU** again to resume playback at the scene when you pressed **TOP MENU/TITLE MENU**.
- Press **▲/▼** or **◀/▶** to select the desired title.
- Press **ENTER**. The playback of the selected title will start.

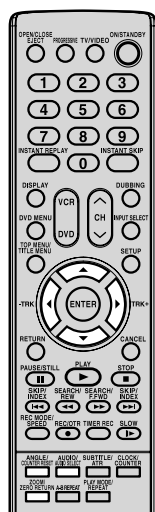
DVD menu

Some DVDs allow you to select the disc contents using the menu. When you playback these DVDs, you can select the subtitles language and soundtrack language, etc. using the DVD menu.

- Press **DVD MENU** during playback. The DVD menu appears on the screen.
 - Press **DVD MENU** again to resume playback at the scene when you pressed **DVD MENU**.
- Press **▲/▼** or **◀/▶** to select the desired item.
- Press **ENTER**. The menu continues to another screen. Repeat steps 2 and 3 to set the item completely.

NOTE: Depending on the DVD, you may be unable to select the title, and a "title menu" may simply be called a "menu" or "title" in the instructions supplied with the disc.

Changing angles / Zooming / Karaoke playback



Changing angles

When playing back a disc recorded with multi-angle facility, you can change the angle that you are viewing the scene from.

- 1 Press **ANGLE** during playback.
The current angle will appear.

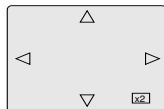


- 2 Press **ANGLE** repeatedly until the desired angle is selected.

Zooming

This unit will allow you to zoom in on the frame image. You can then make selections by switching the position of the frame.

- 1 Press **ZOOM** during playback.
The center part of the image will be zoomed in.
Each press of **ZOOM** will change the ZOOM "x2", "x3" and "x4".



- 2 Press **▲/▼** or **◀/▶** to view a different part of the frame.
You may move the frame from the center position to UP, DOWN, LEFT or RIGHT direction.

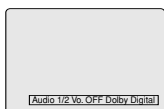
- 3 In the zoom mode press **ZOOM** repeatedly to return to a 1:1 view "x1".

Karaoke playback

You can turn the vocal on or off recorded on the DVD KARAOKE.

During DVD KARAOKE disc playback, press **AUDIO** repeatedly until the desired setting is selected.

- Vo. ON** : The primary vocal is output when it is recorded on the disc.
- Vo. OFF** : The primary vocal is not output.



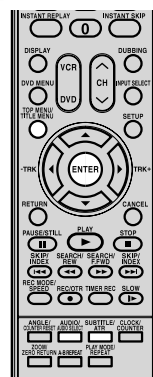
NOTES :

- Some Karaoke discs may not have the vocal on/off function.
- The on screen display will disappear after a few seconds.

NOTES:

- Depending on the DVD, you may not be able to change the angles even if multi-angles are recorded on the disc.
- You can use the Pause, Slow, Search or Skip feature in the zoom mode.
- The vocal output feature is used during playback of Dolby Digital (multi-channel) recorded DVD KARAOKE discs. This feature allows you to turn off vocal audio tracks, or restore them for background accompaniment.
- When playing Karaoke, connect appropriate audio equipment such as an amplifier to this unit.

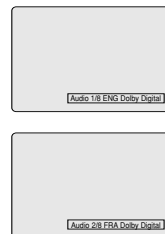
Changing soundtrack language / Subtitles / To turn off the PBC



Changing soundtrack language

You can select the language when you play a multilingual disc.

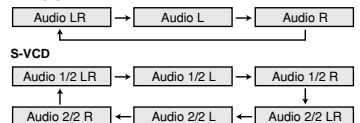
- 1 Press **AUDIO** during playback.
The current soundtrack language will appear.
- 2 Press **AUDIO** repeatedly until the desired language is selected.
The on-screen display will disappear after a few seconds.



■ In case of VIDEO CD playback

Audio type will change as follows each time you press **AUDIO**.

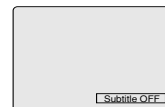
VIDEO CD



Turning the subtitles On and Off

When playing back a disc recorded with subtitles, you can turn the subtitles on or off.

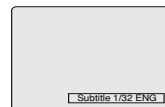
Press **SUBTITLE** during playback until "Subtitle OFF" appears.



Changing the subtitles language

You can select the language when playing back a disc recorded with multilingual subtitles.

Press **SUBTITLE** repeatedly during playback until your desired language appears.
The on screen display will disappear after a few seconds.



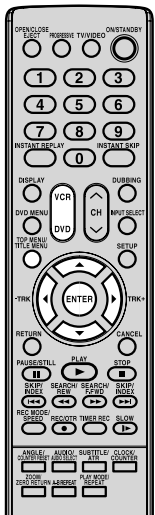
To turn off the PBC

Press **TITLE MENU** in the stop mode, then press **ENTER**.

Various operations on CD



This section describes the **TRACK INFO** screen where music CDs can be played back using the various operations.

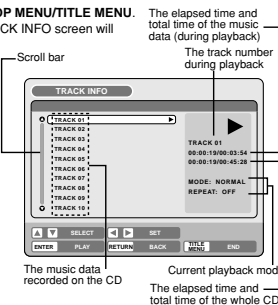


Preparation:

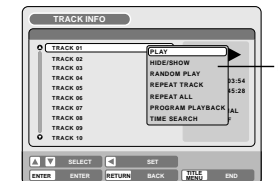
- Turn ON the TV and set to the video input mode.
- Load the music CD.
- Press **DVD** to select the DVD mode. (The DVD indicator will light.)

Press **TOP MENU/TITLE MENU**.

The **TRACK INFO** screen will appear.



Press **▶**. The menu list will appear.



Playing back a selected track

- 1 Press **▲** or **▼** to select the track number you want to playback and press **▶**.
- 2 Press **▲** or **▼** to select "PLAY" from the menu list and press **ENTER**.
The selected track will be played back.

Excluding specified track

- 1 During stop, press **▲** or **▼** to select the track number you do not want to playback and press **▶**.
- 2 Press **▲** or **▼** to select "HIDE/SHOW" from the menu list and press **ENTER**.
The selected track will not be played back. ("H" appears at the side of the track number.)

When you want to cancel the exclusion, press **▲** or **▼** to select the track number with "H" and press **▶**. Press **▲** or **▼** to select "HIDE/SHOW" from the menu list and press **ENTER**, "HIDE" will be cancelled.

NOTE:

In case the disc includes more than 10 tracks, you can turn to the next or the previous page. Press **◀**, then press **▼** or **▶** to display next/previous page. To return to normal use, press **▶**.

Various operations on CD



Random playback

- 1 Press **▲** or **▼** to select "RANDOM PLAY" from the menu list and press **ENTER**.
The order of music tracks is randomly changed.
- 2 Press **PLAY**.
Music is played back in random order.

To cancel random playback, select "RANDOM PLAY" from the menu list again, and press **ENTER**.

Repeat playback of selected track

- 1 Press **▲** or **▼** to select the track number you want to repeat playback and press **▶**.
- 2 Press **▲** or **▼** to select "REPEAT TRACK" from the menu list and press **ENTER**.
- 3 Press **PLAY**.
The selected track will be played back repeatedly.

To cancel repeat track playback, select "REPEAT TRACK" from the menu list again, and press **ENTER**.

Repeat playback of all tracks

- 1 Press **▲** or **▼** to select "REPEAT ALL" from the menu list and press **ENTER**.
- 2 Press **PLAY**.
All tracks on CD will be played back repeatedly.

To cancel the repeat all playback, select "REPEAT ALL" from the menu list again, and press **ENTER**.

Playing back programs

You can specify the playback order yourself.

- 1 Press **▲** or **▼** to select "PROGRAM PLAYBACK" from the menu list and press **ENTER**.
- 2 Press **▲** or **▼** to select to the track number that you want to change the order of and press **ENTER**.
The "▶" mark will appear at the right side of the track number.
- 3 Press **▲** or **▼** to select to the track number that you want to specify and press **ENTER**.
The track number that you select in step 2 moves to the position that you specified.
- 4 Repeat steps 2 and 3 to change the playback order.
- 5 Press **PLAY**.
The tracks will be played back in the changed order.

To cancel program playback, select "EXIT PROGRAM MODE" from the menu list and press **ENTER**.

Playing back track by specifying the time

- 1 Press **▲** or **▼** to select "TIME SEARCH" from the menu list during playback and press **ENTER**.
- 2 Press **▲/▼** or **◀/▶** to specify the elapsed time of the track (this will be the starting point of playback) and press **ENTER**.
Playback will start from the specified elapsed time.

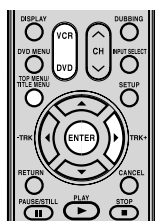
NOTE:

When recording on a CD-R/CD-RW in the MP3 or WMA modes, "RANDOM PLAY" and "TIME SEARCH" will not appear in the menu list.

MP3/WMA/JPEG playback



MP3 and WMA files can be played back. Also, you can display JPEG files on the TV screen and enjoy them as a slide show. Some discs may not play due to the condition of the recording.



Limitations on MP3/WMA/JPEG CD playback:

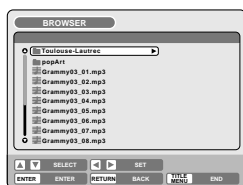
- MP3/WMA/JPEG CD is a disc that is standardized by ISO9660.
- The directory and file names of the MP3/WMA/JPEG CD must correspond to the ISO standardized file names.
- This unit can read 200 files per directory. If one directory has more than 200 files, it reads up to 200 files, the remaining files will be omitted.
- The unit is able to recognize up to a maximum of 50 directories per disc.
- If the CD has both audio tracks and MP3/WMA/JPEG files, only audio tracks are played.
- It may take more than one minute for this unit to read MP3/WMA/JPEG files depending on its structure.
- Music recorded by "Joliet Recording Specification" can be played back. Long file names will be cut.
- The music files recorded by "Hierarchical File System" (HFS) cannot be played.

Preparation:

- Turn ON the TV and set to the video input mode.
- Load the disc storing MP3, WMA or JPEG.
- Press **DVD** to select the DVD mode. (The DVD indicator will light.)

Using the BROWSER screen

- Press **TITLE MENU**. The BROWSER screen will appear.

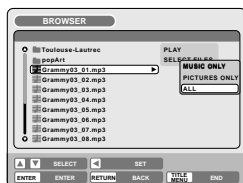


- The MP3, WMA and JPEG files and folders stored in the disc are displayed on the BROWSER screen.
 - Select a folder and press **ENTER**. The files in the folder appear.

When the file to be displayed is selected

You can select the file types to be displayed on the BROWSER screen.

- Press **▶** to select "SELECT FILES" and press **ENTER**. The following list will appear.



MUSIC ONLY: Only the MP3 and WMA files appear.
PICTURES ONLY: Only the JPEG files appear.
ALL: All files and folders appear.

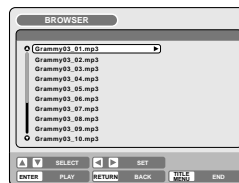
- Select one item in the above list and press **ENTER**. The display will be changed to the selected display type.

MP3/WMA/JPEG playback

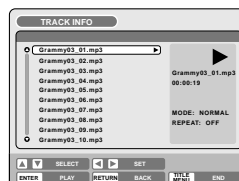


Playing back MP3/WMA files

- Press **▲** or **▼** to select MP3 or WMA file.
 - In case the disc includes more than 10 files, you can turn to the next or the previous page. (See page 42.)



- Carry out either of the item a or b below.
 - Press **ENTER**.
 - Press **▶** to select "PLAY" and press **ENTER**. The TRACK INFO screen appears to playback the selected file. For the details of the TRACK INFO screen, see "Various operations on CD" on page 42.



- To return to the BROWSER screen, press **RETURN**.
 - To stop playback of the MP3 or WMA files, press **TITLE MENU**.

MP3 CD

- MP3 files must have the extension letters ".mp3".
- Standard, sampling frequency, and the bit rate:
 - MPEG-1 Audio
 - 32kHz, 44.1kHz, 48kHz
 - 320kpbs to 320kpbs (constant bit rate or variable bit rate)
- The recommend recording setting for a high quality sound is 44.1kHz of sampling frequency and 128kpbs of constant bit rate.

WMA CD

- When creating a WMA disc, make sure that the copyright function is off. DRM (Digital Rights Management) files cannot be played back.
- WMA files must have the extension letters ".wma".
- Standard, sampling frequency, and the bit rate:
 - WMA version 7 and 8
 - 32kHz, 48kpbs
 - 44.1kHz, 48kpbs to 192kpbs
 - 48kHz, 128kpbs to 192kpbs
- Music files recorded as mono, 48kHz, 48kpbs cannot be played back by this unit.

This DVD/VCR requires discs and recordings to meet certain technical standards in order to achieve optimal playback quality. Pre-recorded DVDs are automatically set to these standards. There are many different types of recordable disc formats (including CD-R containing MP3 or WMA files) and these require certain pre-existing conditions (see above) to ensure compatible playback. Because this area of technology is still evolving, Toshiba cannot guarantee that all recordable discs will produce optimal playback quality. The technical criteria set forth in this owner's manual are meant only as a guide.

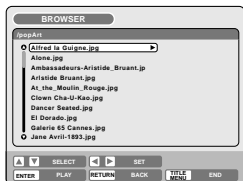
Please be advised that you must obtain permission from the applicable copyright owners to download copyrighted content, including music files, in any format, including the MP3 or WMA formats, prior to the downloading thereof. Toshiba has no right to grant and does not grant permission to download any copyrighted content.

MP3/WMA/JPEG playback

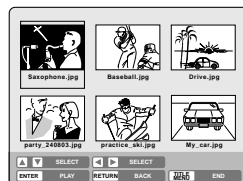


Playing back JPEG files

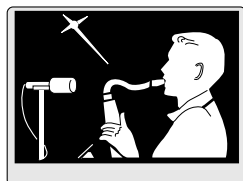
- Press **▲** or **▼** to select JPEG file.
 - In case the disc includes more than 10 files, you can turn to the next or the previous page. (See page 42.)



- Carry out either of the item a or b below.
 - Press **ENTER**.
 - Press **▶** to select "PLAY" and press **ENTER**. The thumbnail images of the JPEG files stored in the route directory or the folder appear. Press **▲**, **▼**, **▶** or **◀** to select the pages of the thumbnail images, or select the JPEG file to be displayed at first for the slide show.



- Press **ENTER** to play the selected picture. If you have set the interval time for JPEG slide show, the pictures will be played back one after another automatically. (See page 32.)
 - Press **ZOOM** to enlarge the displayed image.
 - Press **ANGLE** to rotate the image by 90 degrees each time.



- To return to the thumbnail screen, press **RETURN**.
 - To stop the slide show, press **TITLE MENU**.

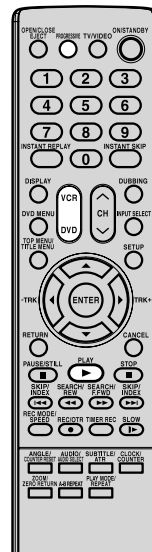
JPEG CD

JPEG files must have the extension letters ".jpe", ".jpeg" or ".jpg".

Progressive scan



The unit supports the progressive scanning system as well as the conventional interlaced scanning system. If your TV is equipped with component video input jacks which support the progressive video input, you can enjoy high quality picture by making the progressive scanning mode active.



Preparation:

- Connect to a TV equipped with component jacks which support the progressive video input.
- Turn ON the TV and set it to the corresponding video input mode.
- Press **DVD** to select the DVD mode. (The DVD indicator will light.)

- Press **PROGRESSIVE** in the stop mode. The PROGRESSIVE indicator "P" on the display window will light.
 - The unit recognizes the picture source (film or video) of the current disc according to the disc information.

- Press **PLAY** to start playback.



- To make the progressive scanning mode inactive, press **PROGRESSIVE** in the stop mode. The PROGRESSIVE indicator "P" on the display window will go off.

Different scanning modes

Interlaced scan

Technology that alternately displays odd-numbered scanning lines and even-numbered scanning lines. Also called "480i", "i" meaning "interlace".

Progressive scan

Technology that simultaneously displays odd-numbered scanning lines and even-numbered scanning lines from top to bottom. Also called "480p", "p" meaning "progressive".

NOTES:

- Some discs may not be played back with the progressive scan mode correctly because of the disc characteristics or recording condition.
- There are some progressive TV and High-Definition TV sets that are not fully compatible with the unit, resulting in an unnatural picture when playing back a DVD disc in the progressive scan mode. In such a case, use the interlaced scanning mode.
- You cannot activate the progressive scan mode in the following cases:
 - The unit is in the VCR mode.
 - A DVD disc is currently playing. You must stop playback first.

Loading and unloading a cassette tape



Use only video cassette tapes marked **VHS** and **S-VHS**.

SQPB

- Cassettes marked "VHS" (or "S-VHS") can be used with this video cassette recorder. However, S-VHS recording is not possible with this model.
- This model is equipped with SQPB (S-VHS QUASI PLAYBACK) that makes it possible to playback S-VHS recordings with regular VHS resolution.
- HQ VHS is compatible with existing VHS equipment.

Loading

Push the center of the tape until it is automatically inserted.



Insert the cassette tape with its labeled side facing up and the erase prevention tab positioned on your left. An inverted cassette tape cannot be inserted.



Erase prevention tab

Automatic power ON

When you insert a cassette tape the VCR power will turn ON automatically.

Automatic playback

When loading a cassette tape without an erase prevention tab, playback will start automatically.

Unloading

You can eject the video tape while the unit is turned off.

- Press **EJECT** on the unit or the remote control.



- Remove the cassette tape.

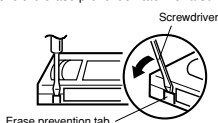


Automatic tape eject

This VCR will automatically rewind the tape when the tape has ended. And when the tape is rewound to its beginning, the cassette tape will be ejected automatically.

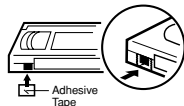
To prevent accidental erasure

Remove the erase prevention tab with a screwdriver.



To record again

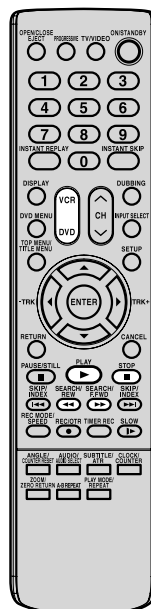
Cover the hole with a piece of adhesive tape.



Tape speed and maximum recording time

Tape Speed	Video cassette tape				
	T-160	T-120	T-90	T-60	T-30
SP (Standard Play)	2-2/3 hours	2 hours	1-1/2 hours	1 hour	30 minutes
SLP (Super Long Play)	8 hours	6 hours	4-1/2 hours	3 hours	1-1/2 hours

Cassette tape playback



Preparation:

- Turn ON the TV and set to the video input mode.
- Press **VCR** to select the VCR mode. (The VCR indicator will light.)

- Load a prerecorded tape

(When loading a cassette tape without the erase prevention tab, playback will start automatically).

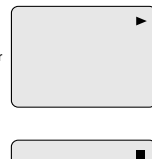


- To start playback

Press **PLAY**.

Playback will start.

▶ will appear on the screen for about 4 seconds.



To stop playback

Press **STOP** once.

The tape will stop but remain fully loaded and ready to play.

■ will appear on the screen for about 4 seconds.



To rewind the tape or forward it rapidly

Press **STOP**.

To rewind the tape:

Press **REW**.



To forward the tape:

Press **F.FWD**.



To stop the tape-winding, press **STOP**. To switch to playback directly (without **STOP**), press **PLAY**.

Forward/Reverse picture search mode

When the tape is being wound, you can switch to picture search mode (see next page). To do this, press **REW** or **F.FWD** and hold it down. The unit will resume the tape winding as soon as the button is released.

NOTES:

- This VCR selects the playback tape speed SP, LP or SLP automatically.
- A cassette tape and DVD disc can be played back simultaneously. If you press **VCR**, the tape playback and DVD playback alternate with each other on the screen.

Special playback



Picture search

Reverse picture search function

Press **REW** x 1 or x 2 during the playback.

Forward picture search function

Press **F.FWD** x 1 or x 2 during the playback.

To return to playback: Press **PLAY**.

SPEED SEARCH TIMES

TAPE SPEED	PICTURE SEARCH SPEED	
	PRESS ONCE	PRESS TWICE
SP (Standard Play)	3 X	5 X
LP (Long Play)	7 X	9 X
SLP (Super Long Play)	9 X	15 X

Still picture

Press **PAUSE** during playback.

To resume normal playback: Press **PLAY** or **PAUSE**.

Slow motion

During playback press **SLOW**.

To return to playback: Press **PLAY** or **SLOW**.

Slow tracking and vertical lock adjustment

If noise bars appear in the picture during slow motion, press the **TRK +** or **-** to reduce the noise bars.

If the still picture jitters excessively, press **TRK +** or **-** to stabilize the still picture.

Frame by frame picture

Press **PAUSE** during playback.

Press **SLOW** one by one: The picture advances frame by frame.

To return to playback: Press **PLAY** or **PAUSE**.

Adjusting tracking condition

Automatic tracking adjustment

Whenever you insert a tape and start playback, automatic tracking starts working and continuously analyzes the signal to enable optimum picture quality during playback.

Manual tracking adjustment

If automatic tracking cannot eliminate noises well during playback, press **TRK +** or **-** to eliminate the noises. "MANUAL TR." will appear. Press it briefly for a fine adjustment, or press and hold for a coarse adjustment.

• Press **ATR** to reactivate automatic tracking again. "AUTO TR." will appear.

NOTES:

- The audio output is muted during SPEED SEARCH, STILL, FRAME ADVANCE and SLOW MOTION.
- During picture search mode there will be noise bars which are caused by the system.
- The Special Playback will automatically change to playback after approx. 5 minutes to protect the video tape against excessive wear.

Repeat playback

The entire video tape will be played until its end. The tape will then automatically rewind to the beginning and the playback will be repeated.

- Press **REPEAT** while the VCR is playing back.

- By pressing **REPEAT** each time, "REPEAT ON" or "REPEAT OFF" is selected in turn.



- When "REPEAT ON" is selected, the tape is played back to the end, and then, it is automatically rewound to the starting point and played back again. The display "REPEAT ON" goes out in about 3 seconds.

To cancel repeat playback: Press **REPEAT** to select "REPEAT OFF".

Instant skip

Press **INSTANT SKIP** during playback.

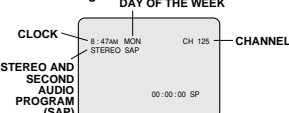
The video is rapidly forwarded for approx. 30 seconds and playback resumes.

You may press the button up to six times in a row to move 180 seconds ahead.

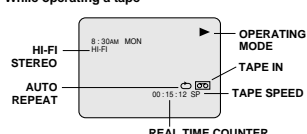
To display VCR operation status

Press **DISPLAY**. The clock, day of the week and more information will be indicated.

While watching TV



While operating a tape



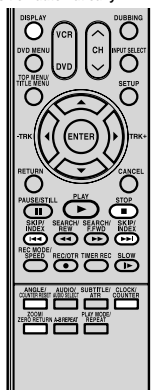
To cancel the display: Press **DISPLAY** until all indicators disappear.

ZERO RETURN function / Video index search system



ZERO RETURN function

This function makes tape rewinding stop at the counter "00:00:00" position automatically.



- Press **DISPLAY**.

The counter display shows the tape running time during playback or recording.



- Press **COUNTER RESET** at the desired tape position. The counter display will be reset to the "00:00:00" position (e.g. the beginning of recording).



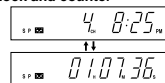
- Press **STOP** when playback or recording is finished.

Press **ZERO RETURN**.

The tape will be rewound or fast forwarded and automatically stop at the "00:00:00" position.

Switching the display between clock and counter

Press **CLOCK/COUNTER**. The clock and tape counter alternate with each other in the display.

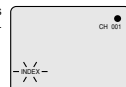


Video index search system

This function enables you to locate the beginning of any recording made on the VCR.

Recording an INDEX MARK

The Index search function automatically records an INDEX mark on the tape whenever a recording is initiated.



Index search

Press **INDEX** ▶▶ or ◀◀ during stop or play mode.

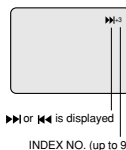
For Succeeding programs: Press **INDEX** ▶▶.

For Preceding programs: Press **INDEX** ◀◀.

(Additional press increases the INDEX NO. up to 9.)

When the **INDEX** ▶▶ or ◀◀ is pressed, the unit starts searching the INDEX NO. selected and finds the portion, then playback starts automatically.

To stop the Index Search, press **STOP**.



NOTES for Counter Display:

- If you rewind the tape beyond "00:00:00", a minus sign "-" will be displayed in front of the time.
- When you load a tape, the counter will reset to "00:00:00".
- The counter does not function on nonrecorded (blank) sections of the tape. When you rewind, fast forward or play tapes through blank sections, the counter stops.

NOTES for Video index search system:

- When you record an INDEX mark at the very beginning of the tape, the mark may not be found.
- During INDEX search, the tape may stop and begin to play at a slightly different location.
- INDEX may not function properly with old or worn out video tapes.
- INDEX marks may not be found if it is extremely close to the point where the search began.
- In recording, if you stop recording temporarily, the INDEX mark is not recorded on the tape.

Read this before recording on disc

This section explains things you must know to record onto a disc. Read it before attempting to record.

NOTE:

Should a power failure occur or should the AC cord plug be disconnected while recording, editing, initializing, finalizing or any other function, the program being recorded will be lost or the disc may not be playable. Manufacturer can not guarantee against loss of program or disc should this occur. To start recording again, re-format the disc or use a new disc and follow the instruction on recording.

NOTES:

Recording time can change for the following reasons.

- When image quality is poor as during poor TV reception.
- When recording on a disc that has been edited before.
- When the video is followed with recordings of still images or just audio.

NOTE:

Because of characteristics peculiar to digital video compression technology, scenes with fast motion may appear as a matrix of larger blocks.

The unauthorized recording, use, distribution, or revision of television programs, videotapes, DVDs and other materials, is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and/or criminal liability.

Types of disc

You can use DVD-RAM, DVD-RW and DVD-R discs to record video.

DVD-RAM/-RW (VR mode)

- This mode involves multiple editing functions.
- Various editing options using a created Playlist.

DVD-RW (Video mode)-R

- Simple editing (renaming titles).

For more information on recording format, see "Recording format" (page 10).

Recording modes

There are 4 modes for recording on disc. Recording time and quality vary according to mode.

Recording mode	Recording time	Quality
XP	Approx. 60 min	Can record high quality images.
SP	Approx. 120 min	Can record normal quality images.
LP	Approx. 240 min	Quality deteriorates slightly, but recording time is longer.
SLP	Approx. 360 min	Recording time is prioritized over quality.

- Recording time above is based on a 4.7GB disc.

Since DVD recording is performed using VBR (Variable Bit Rate), recording time varies according to the recorded content. To know the correct recording time, stop recording and check the media information. (See page 35.)

Disc remaining time

VR mode

- Recording is possible as long as there is available space on the disc. (Finalized discs can be recorded by cancelling the finalization, see "UNDO FINALIZE" on page 26.)
- Erasing unnecessary title frees up available space on the disc. (Titles can be erased from finalized discs by first undoing the finalization. See "UNDO FINALIZE" on page 26.)

Video mode

- Up until the disc is finalized, recording is possible as long as there is available space on the disc. (Once the disc has been finalized, additional recording and erasing are not possible.)
- The remaining time cannot be increased, nor can recorded title be overwritten.
- Titles cannot be erased nor can recorded titles be overwritten.

Read this before recording on disc

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Images that cannot be recorded

Some DVD-Video and broadcasts contain copy-restriction signals to protect copyrights. There are 3 types of copy-restriction signals: "Copy Free", "Copy Never" and "Copy Once".

"Copy Free" (unrestricted recording)

Land-based TV broadcasts and images you record yourself with a video camera allow unrestricted recording. There are no restrictions on recording.

"Copy Never" (recording prohibited)

- Images that contain the recording prohibited signal cannot be recorded.
- If the recording prohibited signal appears halfway through an image you are recording, recording is paused at that instant. When the recording prohibited signal ends, recording resumes.
- This unit incorporates a built-in copy guard. It cannot record software or broadcasted programs that contain copy restriction signals designed to protect copyright, etc.

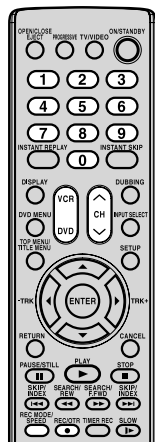
"Copy Once" (one-time recordable)

Programs (images) that contain the one-time recordable signal can be recorded only in the VR mode using a DVD-RW disc that supports CPRM Ver. 1.1 and Ver 1.2.

Recording a TV program



You can record programs you watch on TV onto video tapes or DVDs.



NOTES:

- When recording onto a DVD, it takes some time from when you press **REC/OTR** until recording actually starts. Press **REC/OTR** a little before your preferred starting point. With a video tape, recording starts almost at the same time you press **REC/OTR**.
- If the erase prevention tab of video tapes is removed, the tape will eject when **REC/OTR** is pressed for recording.

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Preparation:

- Turn ON the TV and set it to the video input mode.
- Load a recordable DVD or video tape into the unit.
- Press **DVD** or **VCR** to select the appropriate mode.

1 Press **REC MODE/SPEED** to select the recording mode.

The recording mode will appear on the TV monitor and change every time **REC MODE/SPEED** is pressed.
VCR recording modes: SP/SLP
DVD recording modes: XP/SP/LP/SLP

SP is the normal recording mode for video tapes. SLP offers 3 times the recording time as SP. For more information on DVD recording modes, see page 52.

2 Set the TV/CABLE option to the appropriate position (page 32).

TV - VHF/UHF channels
CABLE - CABLE TV channels

3 Press the numeric keys or **CH** Δ to select the channel to be recorded.

TO SELECT Cable TV CHANNELS:

- 1-9 Press **0** twice and then 1-9 as required.
Example: To select 2, Press "002".
- 10-12 Press **0** first and then the remaining 2 digits in order from left to right.
Example: Press **012** for "12".
- 13-99 Press 2 digits in order.
Example: Press **22** for "22".
- 100-125 Press the 3 digits in order.
Example: Press **110** for "110".

TO SELECT TV CHANNELS 1-12:

If only 1 or 2 buttons are pressed, the corresponding channel will be selected in 2 seconds.

VHF/UHF/CABLE CHANNELS

TV	CABLE
VHF	VHF
2-13	2-13
UHF	STD/HRC/IRC
14-69	14-36 (A) (W)
	37-59 (AA) (WW)
	60-85 (AAA) (ZZZ)
	86-94 (86) (94)
	95-99 (A-5) (A-1)
	100-125 (100)(125)
	01 (5A)

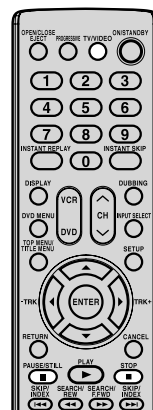
4 Press **REC/OTR**.

"●" appears on the screen for about 4 seconds and recording will start.

VCR mode

DVD mode

Recording a TV program



Auto Rewind feature

This VCR will automatically rewind the tape when the tape has ended (except during OTR and TIMER REC). It will also eject the tape.

NOTES:

- If the disc space becomes full, the recording is stopped and "Disc is full" will appear on the screen.
- In the event of a power failure during DVD recording including OTR and TIMER REC, the program can not be recorded on the disc. When the power resumes, after the VCR/DVD is turned on, the set checks the disc to repair the error which is caused by a power failure. This checking process may require a few minutes to about 1 hour according to disc condition. In this process "SYSTEM ERROR PLEASE WAIT DISC CHECKING" will appear on the screen.

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To stop recording

Press **STOP** to stop recording.
"■" will appear on the screen for about 4 seconds.

NOTE:

When recording onto a DVD, even if **STOP** is pressed during recording, recording does not stop instantly. Recording may continue for as long as 1 minute maximum.

To stop recording temporarily

Press **PAUSE/STILL** to avoid recording unwanted material.
"●●" will appear on screen for about 4 seconds.
Press again to resume recording.

NOTES:

- In video recording, the pause function will be released after 5 minutes to prevent damaging the video tape. The unit will change to the STOP mode.
- When recording onto a video tape, you can select a recording channel in the recording pause mode. (You cannot change a recording channel in the DVD recording pause mode.)

Recording one program while watching another

While the unit is recording, press **TV/VIDEO** to select the TV position. The "TV" will light up on the display window and recording will continue. Select the TV channel you want to watch by using the TV channel selector.

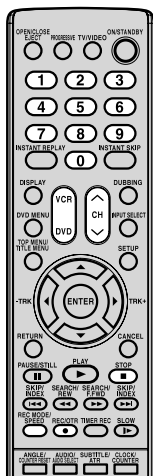
NOTE:

Some CABLE hookups do not permit viewing one channel while recording another. See pages 18, 19.

One-touch Timer Recording (OTR)



The One-touch Timer Recording feature provides a simple and convenient way to make a timed recording.




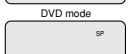
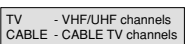


NOTE:
If you wish to watch the DVD playback during the VCR OTR, press **DVD** to change to DVD mode and perform the DVD playback. You can also playback the VCR during DVD OTR.

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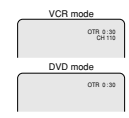
Preparation:

- Turn ON the TV and set to the video input mode.
- Load a recordable DVD or video tape into the unit.
- Press **DVD** or **VCR** to select the appropriate mode.

Example: One-touch Timer Recording for 30 minutes.

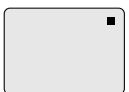
- 1 Press **REC MODE/SPEED** to select the recording mode.
For the recording mode, see the step 1 on page 54.


- 2 Set the TV/CABLE option to the appropriate position (See page 32).


- 3 Press **numeric keys** or **CH** Δ/∇ to select the channel to be recorded.

- 4 Press **REC/OTR**. Each additional press of **REC/OTR** will increase recording time as shown in the chart below, up to a maximum of 6 hours. The OTR and recording time will appear on the screen for about 4 seconds.

Press	Recording time	Press	Recording time
once	NORMAL REC	7 times	OTR 3:00
twice	OTR 1:30	8 times	OTR 4:00
3 times	OTR 0:30	9 times	OTR 5:00
4 times	OTR 1:00	10 times	OTR 6:00
5 times	OTR 1:30	11 times	NORMAL REC
6 times	OTR 2:00		



To cancel OTR

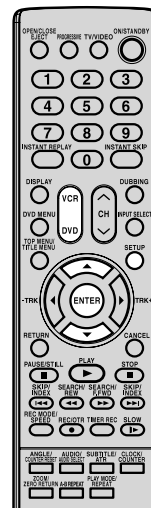
Press **STOP** or turn off the power.
■ will appear on screen for about 4 seconds.



Timer recording



The timer recording system allows you to select the date, time and channel and record the desired programs. Up to 12 timer programs within a month can be stored in this unit.



NOTE:
If a recordable tape is not inserted or no disc space is available, the timer record indicator "□" flashes. Replace the tape or disc to allow recording.

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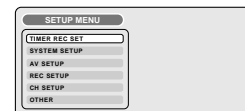
Setting timer recording

Preparation:

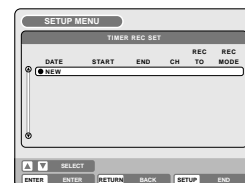
- Turn ON the TV and set to the video input mode.
- Load a recordable DVD or video tape.
- Press **DVD** or **VCR** to select the appropriate mode.
- Confirm that the clock is indicating the correct time.

Example: Set the recording mode to LP; the TV program is on channel 12 starting at 8:00 PM and stopping at 9:30 PM on a date of 20th.

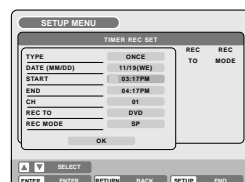
- 1 Press **SETUP**.
The **SETUP MENU** screen appears.



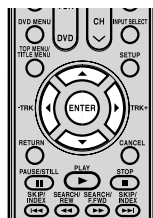
- 2 Press Δ or ∇ to select "TIMER REC SET" and press **ENTER**.
The **TIMER REC SET** screen will appear.



- 3 Press Δ or ∇ to select "NEW" and press **ENTER**.
The program screen will appear.



Timer recording

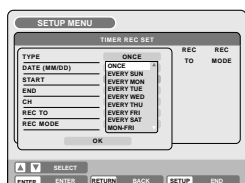


NOTES:

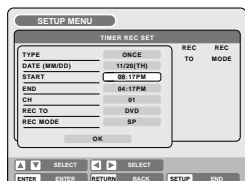
- If you select timer recording on a specified date only one time, select "ONCE" in the "TYPE" for recording. You can record same days of every week or from Monday to Friday using the item "TYPE". The items you can select are as follows:
ONCE: Recording on the selected "DATE"
EVERY SUN: Recording every Sun.
EVERY MON: Recording every Mon.
EVERY TUE: Recording every Tue.
EVERY WED: Recording every Wed.
EVERY THU: Recording every Thu.
EVERY FRI: Recording every Fri.
EVERY SAT: Recording every Sat.
MON-FRI: Recording from Mon. to Fri.
MON-SAT: Recording from Mon. to Sat.
EVERYDAY: Recording everyday.
- The starting and stopping times for the recording are displayed on the 12-hour (am/pm) clock. Twelve o'clock midnight is displayed as "12:00AM", whereas twelve o'clock noon is displayed as "12:00PM".
- The initial setting of "REC TO" and "REC MODE" can be changed using "Setting the recording". (See page 31.)

The unauthorized recording, use, distribution, or revision of television programs, videotapes, DVDs and other materials, is prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and/or criminal liability.

- 4 Press Δ or ∇ to select "TYPE" and press **ENTER**.
Press Δ or ∇ to select "ONCE" from the list and press **ENTER**.

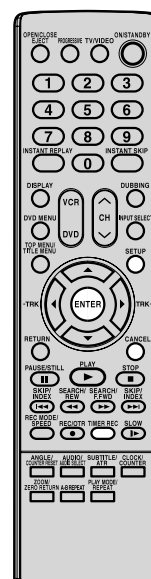


- 5 Press Δ or ∇ to select "DATE" and press **ENTER**.
Press Δ or ∇ to select the date to be recorded from the list and press **ENTER**.
- 6 Press Δ or ∇ to select "START" and press **ENTER**.
Set the time when the recording is started.
• To switch over the selection item (hour or minute), press \triangleleft or \triangleright , then press **ENTER**.
• Press Δ or ∇ to adjust the time.
• After setting the time, press **ENTER**.



- 7 Press Δ or ∇ to select "END" and press **ENTER**.
Set the stopping time in the same manner for setting the starting time of timer recording.
- 8 Press Δ or ∇ to select "CH" and press **ENTER**.
• Press Δ or ∇ to select the channel to be recorded.
• You can select the external input (L1 or L2) by pressing \triangleleft or \triangleright .
- 9 Press Δ or ∇ to select "REC TO" and press **ENTER**.
Select the media (DVD or VCR) to be recorded from the list and press **ENTER**.
- 10 Press Δ or ∇ to select "REC MODE" and press **ENTER**.
The recording modes for the media selected in "REC TO" item are listed up.
Select the recording mode and press **ENTER**.
For the recording modes in VCR, see page 48, and for the recording modes in DVD, see page 52.

Timer recording



NOTES:

- Recording starts a few seconds before the preset starting time.
- You cannot use the timer recording for the both DVD and VCR at the same time.
- You can playback the DVD during the VCR timer recording, and you can playback the VCR during the DVD timer recording.

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- 11 Select "OK" and press **ENTER**.
The timer program is determined and the **TIMER REC SET** screen appears again.
- 12 When you enter the other program for the timer recording, repeat the steps 3 to 11.
- 13 Press **SETUP**.
The **TIMER REC SET** screen disappears and the display will return to the normal screen.
- 14 Press **TIMER REC**. The timer indicator "□" will appear on the display and the unit stands by for recording.
• If the program is DVD recording only, the unit will change to VCR mode automatically. (The DVD mode cannot be selected.)
• If the program is VCR recording only, the unit will change to DVD mode automatically. (The VCR mode cannot be selected.)
• If the programs are DVD and VCR recording, the unit will turn off. If you want to use the unit, press **TIMER REC** again to deactivate the timer.

Checking or changing the timer recording

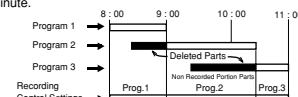
When you want to check the selected timer recording, follow the steps 1 and 2 of "Setting timer recording" and display the **TIMER REC SET** screen. To change the timer recording, select the program to be changed and press **ENTER**. The changing method is the same as that for the recording a program for the first time.

Cancelling the timer recording

Display the **TIMER REC SET** screen.
Select the program you want to cancel and press **CANCEL**, then the selected program will be erased from the timer recording list.

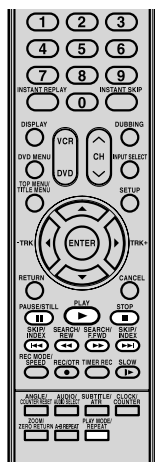
In case Timer programs-overlap

Do not overlap timer programs as portions of the conflicting programs will be lost. The first recording time has priority over the next recording time as shown in the diagram below.
In this case, the next recording time is delayed a maximum of about 1 minute.



Chase Playback

You can begin playback from the beginning of a program currently being recorded. You will find this function of great advantage on long programs, as you do not have to wait for the end of recording to begin playback.



Notes:

- Chase playback is unable when recording a DVD-RW/R disc and video tape.
- Chase playback is unable when recording in XP mode.
- Slow, Instant skip, Instant replay, A-B repeat, and Frame advance does not work during chase playback.
- Chase playback does not work until 30 seconds of recording have elapsed.
- If you press **DISPLAY** during chase playback, the information screen is displayed (see page 35).

- While recording a TV program on the DVD-RAM disc, press **PLAY** to start chase playback. The TV program as it is being recorded will played back.
- Locate a scene you want through the following operations if necessary.

Still playback:

Press **PAUSE**.

- To resume chase playback, press **PLAY**.

Fast forward/Review playback:

Press **SEARCH** **◀▶**. Every press **SEARCH**, it switches the speed of the search.

- To resume chase playback, press **PLAY**.
- If the playback position catches up to within about 60 seconds, chase playback resumes. It may differ depending on the recording condition and search speed.

Locating a chapter:

- Press **SKIP** **◀▶** to locate a chapter that you want to watch.
- If you press **SKIP** **▶▶** while playing back the newest chapter, it starts playing back from about 15 seconds before the recording position.

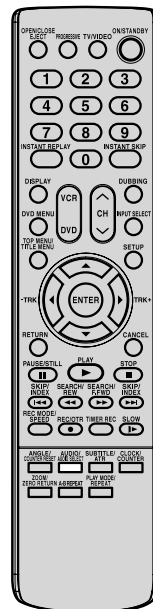
Locating a specific scene:

Press **PLAY MODE** enables you to do a Time Search or a Chapter Search. (See page 37.)

- Press **STOP** to end chase playback. If you press **STOP** again, the recording stops.

Stereo recording and playback

The VHS Hi-Fi audio system permits high fidelity recording of MTS STEREO TV broadcasts.



NOTES:

- When playing back a video tape or disc that is not recorded in Hi-Fi stereo mode, the audio will automatically be monaural.
- When listening to a Hi-Fi video tape, disc or MTS broadcast through the RF OUT (UHF/VHF) jack (Audio/Video cord not connected), the sound will be monaural.

When a MTS STEREO broadcast is received, the word "STEREO" will appear on the screen and the program can be viewed or recorded in stereo.

The Hi-Fi STEREO recording procedure is the same as for normal recordings.

NOTE:

When using a Cable TV system, stereo TV programs may be transmitted over a mono cable channel. In this case the word "STEREO" will not appear and the sound will be in mono.

Output selection

When viewing an MTS STEREO TV program, or playing a prerecorded Hi-Fi STEREO on video tape, press **AUDIO SELECT** to select how the audio will be heard through the speakers. Normally set to the Hi-Fi STEREO position, this button can be set to the MONO position if the stereo audio is of poor quality. The "R" and "L" positions allow the audio from the Right or Left Hi-Fi channel to be heard over both TV speakers. This button has no effect when viewing a monaural audio program. Each time when you press the button, output selection display appears on the screen for several seconds. Refer to the chart below.

OUTPUT SELECTION	SOUND HEARD ON BOTH SPEAKERS
STEREO	STEREO
L ch	LEFT CHANNEL AUDIO
R ch	RIGHT CHANNEL AUDIO
MONO	MONO

Output selection for DVD

You can switch between the left or right channel and stereo only when playing a disc on which a bilingual broadcast was recorded in the DVD-RW VR mode. It is not possible to switch between channels otherwise as only the channel selected in the setting of SAP (Second Audio Program; ON or OFF) is recorded in the DVD-RW Video mode or DVD-R (see page 31).

NOTE:

When a stereo or monaural broadcast is recorded, either stereo or monaural, respectively, is played back and it is not possible to switch between channels.

Editing the disc

This section explains how to edit the recorded contents on DVD-RWs. However, the items that you can edit vary with the recording formats. In VR mode, you can edit various title menus, whereas in Video mode, you can edit only a few items.

Title menu

When the content is recorded, a title name that includes the date, time, channel number and other information is created automatically. The title menu can be used when you playback after confirming the contents (see page 34), or when you check the contents recorded on the disc.

Original title

The titles explained above are called original titles; these will be added with every recording. In VR mode you can do various editing operations i.e., you can rename the titles, or add the chapter marks. In addition, you can erase the unnecessary titles to increase the disc space.

Playlist

You can create a playlist based on the original titles.

You can combine or erase undesired scenes.

If you create a playlist it will become the primary list used by the disc. If you create a playlist to customize your viewing preferences, and choose to delete it, the original titles will not be affected. It is recommended to create and edit the playlist to prevent important titles from being erased accidentally.

If you create a playlist, both the original title and playlist will be displayed on the title menu.

Editable items

The items that can be edited are different between original title and playlist. For the disc in Video mode, only the title name can be edited. The items can be edited in each as follows:

Editing items	VR mode		Video mode
	Original	Playlist	Original
Playback	Y	Y	Y
Adding chapter mark	Y	N	N
Combining chapters	Y	N	N
Erasing scenes	Y	Y	N
Erasing titles	Y	Y	N
Renaming titles	Y	Y	Y
Creating playlist	Y	N	N
Combining titles	N	Y	N

If you finalize the disc in Video mode, the title menu is automatically changed. Thumbnail image and recording information will not appear in the title menu after finalizing.

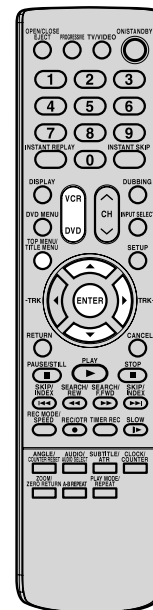
Using these editing functions to modify copyrighted content for any purpose other than your private viewing may be prohibited under the Copyright Laws of the United States and other countries, and may subject you to civil and criminal liability.

NOTES:

- This unit cannot record or edit a disc which was recorded or edited using another DVD recorder.
- You cannot edit or record the disc on which disc protection is set. In such a case, be sure to cancel the disc protection before starting the operation.
- When a scene has been erased, the selected position for erasing may vary slightly from the actual erased position.

Editing a playlist

You can create and edit the playlist based on the original title.



NOTES:

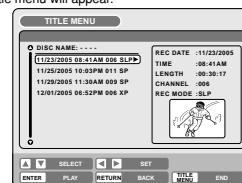
- A playlist can only be created with a DVD-RAM or a DVD-RW in VR mode. You cannot create a playlist with a DVD-RW in Video mode, nor with a DVD-R.
- In case the disc includes more than 10 titles, you can turn to the next or the previous page. (See page 34.)

Preparation:

- Turn ON the TV and set to the video input mode.
- Load the recorded DVD-RAM/RW (VR).
- Press **VIDEO** to select the DVD mode. (The DVD indicator will light.)

Creating a playlist

- Press **TITLE MENU**. The title menu will appear.



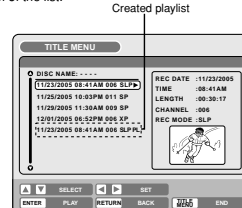
- Press **▲** or **▼** to select the original title which will be used as the base of a playlist.

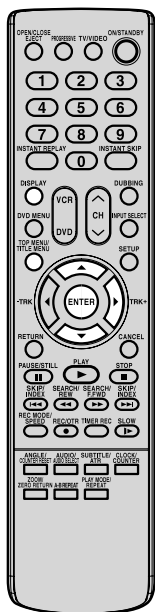
- Press **▶**. The editing menu of original title will appear.

- Press **▲** or **▼** to select "NEW PLAYLIST".



- Press **ENTER**. The editing menu closes and the created playlist appears at the bottom of the list.



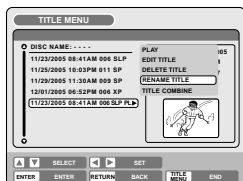


NOTES:

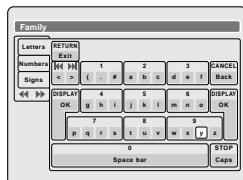
- The title name can be a maximum of 64 characters. Long names will be shortened in the title menu.
- For using the keyboard screen, see "Changing a disc name" (page 75).

Changing a title name

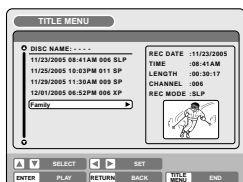
- 1 Press **TITLE MENU** to display the title menu.
- 2 Select the playlist where you want to change the title name.
 - Press **▲** or **▼** to select the playlist.
 - Press **►** to display the editing menu of the playlist.
 - Press **▲** or **▼** to select "RENAME TITLE".



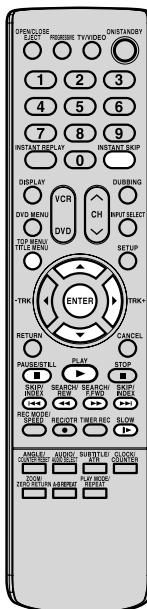
- 3 Press **ENTER**.
The keyboard screen will appear.
- 4 Use the keyboard screen to enter the title name.



- 5 Press **DISPLAY** to return the title menu.



Editing a playlist



Erasing a scene (Edit title)

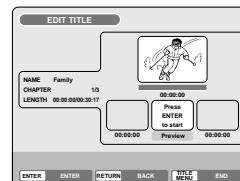
Erasing a scene (Edit title)

You can erase an unnecessary scene from the created playlist.
When you erase the scene from the playlist, the scene is not erased from the original title.

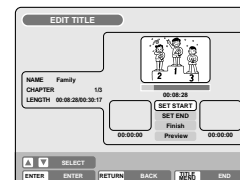
- 1 Press **TITLE MENU** to display the title menu.
- 2 Select the playlist where a scene you want to erase is included.
 - Press **▲** or **▼** to select the playlist.
 - Press **▶** to display the editing menu of the playlist.
 - Press **▲** or **▼** to select "EDIT TITLE".



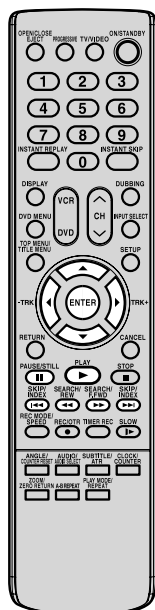
- 3** Press **ENTER**.
The EDIT TITLE screen appears.



- 4 Press **ENTER** to playback the playlist on the **EDIT TITLE** screen.
- Use each operation button (**F.FWD**, **REW**, **SKIP +**, **SKIP -**, **PLAY**, **PAUSE/STILL**, **SLOW**, **INSTANT SKIP**) for the playback to search the starting point of the scene you want to erase.



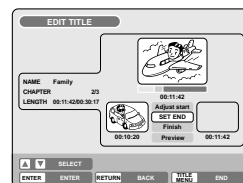
Editing a playlist



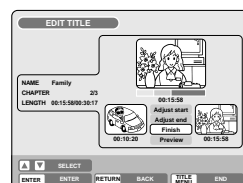
NOTE:

NOTE:
It is no problem to omit the procedures for confirming the scene or adjusting start and end points.

- 5** Press **▲** or **▼** to select "SET START" at the start point of the scene that you want to erase and press **ENTER**. (To set the start point easily, search the start point while "SET START" is selected) The still image at the start point appears at the left small screen.

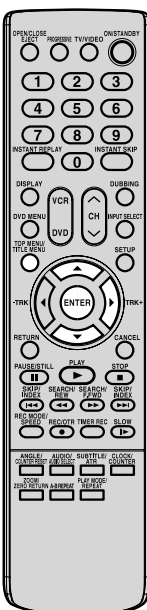


- 6** Press **▲** or **▼** to select "SET END" at the end point of the scene you want to erase and press **ENTER**.
The still image at the end point appears at the right small screen.



- 7 Check the erased scenes.
 - Select **Preview** and press **ENTER**. Then the video where the scenes between the start and end points are erased is played back.
 - Each operation button (**F.FWD**, **REW**, **SKIP +**, **SKIP -**, **PLAY**, **PAUSE/STILL**) for playback also can be used.
- 8 Adjust the start and end points.
 - To adjust the start point, select **Adjust start** and press **ENTER**. You can change the start point by pressing **▲** or **▼**.
 - To adjust the end point, select **Adjust end** and press **ENTER**. You can change the end point in the same way as the start point.
- 9 If you determine the scene to be erased, press **▲** or **▼** to select **Finish** and press **ENTER**.
 - A chapter mark is automatically added at the location of the erased scene.

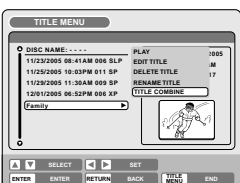
Editing a playlist



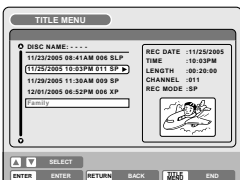
Combining the title

Combining the title You can create a playlist by combining the several original titles or playlists. To combine the titles, it is necessary to create a playlist at first. By combining the titles in the playlist, a playlist where several titles are combined is created.

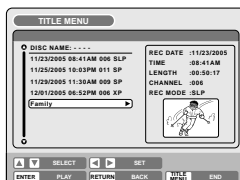
- 1 Press **TITLE MENU** to display the title menu.
- 2 Select the playlist where you want to combine the titles.
 - Press **▲** or **▼** to select the playlist.
 - Press **▶** to display the editing menu of the playlist.
 - Press **▲** or **▼** to select "TITLE COMBINE".



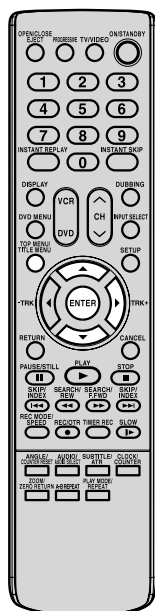
- 3** Press **ENTER**.
Select the title that you want to combine from the title menu.



- 4** Press **ENTER**.
Following the playlist, the selected title is combined.
The several titles were combined so that the total recording time is displayed.



Editing a playlist



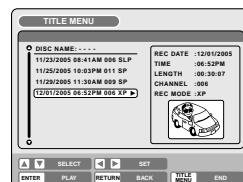
Erasing a playlist

You can erase the created playlist. Even if you erase the playlist, the original title will not be erased.

- 1 Press **TITLE MENU** to display the title menu.
- 2 Select the playlist that you want to erase.
 - Press **▲** or **▼** to select the playlist.
 - Press **▶** to display the editing menu of the playlist.
 - Press **▲** or **▼** to select "DELETE TITLE".

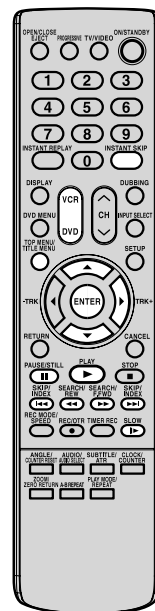


- 3 Press **ENTER**.
The selected playlist will be erased.



Editing an original title

In VR mode, you can edit various items, whereas in Video mode, you can edit the title names only.



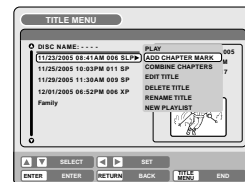
Preparation:

- Turn ON the TV and set to the video input mode.
- Load the recorded disc.
- Press **DVD** to select the DVD mode. (The DVD indicator will light.)

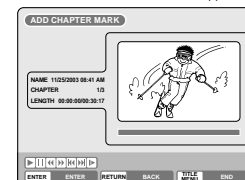
Adding a chapter mark

You can add a chapter mark to the original title. You can add up to 999 chapter marks to one disc.

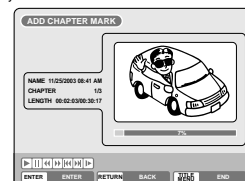
- 1 Press **TITLE MENU** to display the title menu.
- 2 Select the original title where a chapter mark is added.
 - Press **▲** or **▼** to select the original title.
 - Press **▶** to display the editing menu of the original title.
 - Press **▲** or **▼** to select "ADD CHAPTER MARK".



- 3 Press **ENTER**.
The ADD CHAPTER MARK screen will appear.



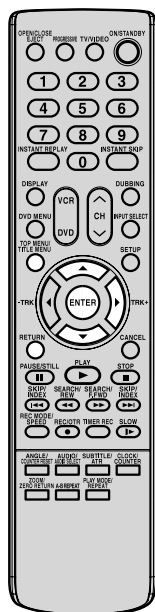
- 4 Press **PLAY** to search a scene where you want to add the chapter mark.
 - Search the scene by using each operation button (**F.FWD**, **REW**, **SKIP +**, **SKIP -**, **PAUSE/STILL**, **SLOW**, **INSTANT SKIP**) for the playback.



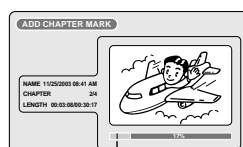
NOTES:

- You can automatically add a chapter mark in recording. For more information, see page 31.
- In case the disc includes more than 10 titles, you can turn to the next or the previous page. (See page 34.)

Editing an original title



- 5 When the scene you want to add a chapter mark, press **ENTER**.
The playback is paused and the position of the added chapter mark appears green.



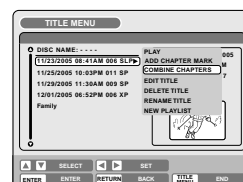
The added chapter mark

- 6 If you want to continue to add chapter mark, repeat step 5.
- 7 Adding chapter marks is finished.
 - To display the title menu, press **RETURN**.
 - To return to the normal screen, press **TITLE MENU**.

Combining chapters

By erasing the added chapter marks, the chapters can be combined.

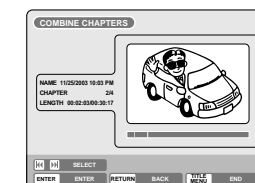
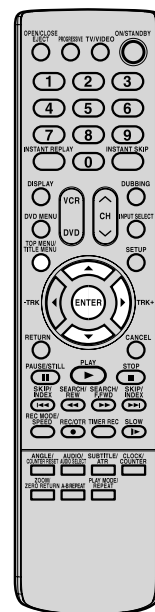
- 1 Press **TITLE MENU** to display the title menu.
- 2 Select the original titles where you want to combine the chapters.
 - Press **▲** or **▼** to select the original title.
 - Press **▶** to display the editing menu of original title.
 - Press **▲** or **▼** to select "COMBINE CHAPTERS".



- 3 Press **ENTER**.
The COMBINE CHAPTERS screen will appear. At the beginning, the top still image in the chapter 2 is displayed.

NOTE:
Chapter marks that have been added automatically in the erasing of a scene procedure (page 72) cannot be erased.

Editing an original title



- 4 Press **SKIP +** or **SKIP -** to select the chapter marks to be erased.
- 5 Press **ENTER**.
The chapter marks are erased and 2 chapters are combined into 1 chapter.
- 6 To continue erasing the chapter marks, repeat steps 4 and 5.
- 7 The combining chapters will be completed.
 - To display the title menu, press **RETURN**.
 - To return to the normal screen, press **TITLE MENU**.

Changing an original title name

- 1 Press **TITLE MENU** to display the title menu.
- 2 Select the original title that you want to rename.
 - Press **▲** or **▼** to select the original title.
 - Press **▶** to display the editing menu of original title.
 - Press **▲** or **▼** to select "RENAME TITLE".



- 3 Press **ENTER**.
The keyboard screen will appear.
The entering method of the title name is the same as for the playlist. See the steps 4 and 5 of "Changing a title name" in "Editing a playlist" (page 64) and enter the title name.

NOTE:
The title name can be a maximum of 64 characters in VR mode and a maximum of 30 characters in Video mode.
Long names will be shortened in the title menu.

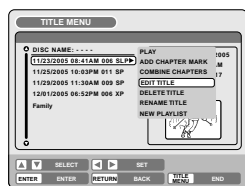
Editing an original title

Erasing a scene (Edit title)

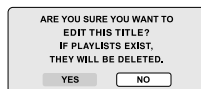
You can erase an unnecessary scene from the original title. Erase the scene after checking the title. You cannot restore the erased scene.

When you erase the scene, you can increase the disc space.

- 1 Press **TITLE MENU** to display the title menu.
- 2 Select the original title where a scene you want to erase is included.
 - Press **▲** or **▼** to select the original title.
 - Press **▶** to display the editing menu of original title.
 - Press **▲** or **▼** to select "EDIT TITLE".



- 3 By pressing **ENTER**, the following message screen will appear.



- 4 Press **◀** or **▶** to select "YES" and press **ENTER**, then the EDIT TITLE screen will appear.
 - By selecting "NO", the title menu appears.
- 5 The method for erasing a scene is the same as for the playlist. See the steps 4 to 9 of "Erasing scenes (Edit title)" in "Editing a playlist" (page 65).

NOTES:

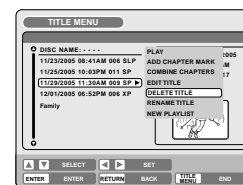
- If the scene is erased from the original title, the created playlist is erased.
- Disc space will only be freed up if scenes lasting several minutes are deleted.
- A chapter mark is automatically added at the location of the erased scene.

Editing an original title

Erasing an original title

You can erase an original title. Erasing the title deletes both the title and the recording saved under that title name. Erase the original title after checking its title. The erased title cannot be restored. When you erase the title, you can increase the disc space.

- 1 Press **TITLE MENU** to display the title menu.
- 2 Select the original title you want to erase.
 - Press **▲** or **▼** to select the original title.
 - Press **▶** to display the editing menu of original title.
 - Press **▲** or **▼** to select "DELETE TITLE".



- 3 By pressing **ENTER**, the following message screen will appear.



- 4 Press **◀** or **▶** to select "YES" and press **ENTER**, then the original title will be erased.
 - Erasing the title will be cancelled by selecting "NO".

NOTE:

If the original title is erased the created playlist is also erased.

Changing a disc name

You can change a disc name from the title menu.

Preparation:

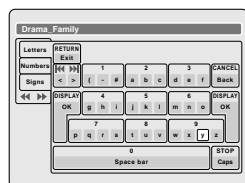
- Turn ON the TV and set to the video input mode.
- Load the recorded DVD disc.
- Press **DVD** to select the DVD mode. (The DVD indicator will light.)

Changing a disc name

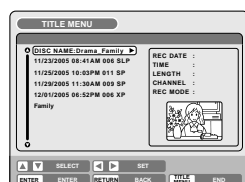
- 1 Press **TITLE MENU** to display the title menu.
- 2 • Press **▲** or **▼** to select "DISC NAME".
 - Press **▶** to display the editing menu.
 - Press **▲** or **▼** to select "RENAME DISC".



- 3 Press **ENTER**. The keyboard screen will appear.
- 4 Use the keyboard screen to enter the disc name.



- 5 Press **DISPLAY** to return the title menu.



NOTES:

- The disc name can be a maximum of 30 characters. Long names will be shortened in the title menu.
- For using the keyboard screen, see "Using the keyboard screen" (page 75).
- A DVD-R disc cannot be named after it is finalized.

Changing a disc name

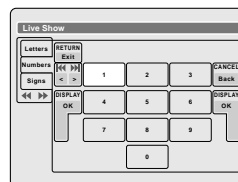
Using the keyboard screen

This section explains the function of the keyboard screen and how to input characters. The disc name and the title name can be changed using the keyboard screen.

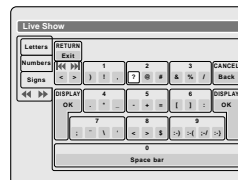
Keyboard screen types

The keyboard screen has three types of "Letters", "Numbers" and "Signs". The type can be switched over by pressing **REW** or **F.FWD**.

- Letters:** This is mainly used for inputting alphabetical letters. For the keyboard screen of Letters, see the previous page.
- Numbers:** This is used for inputting numbers.



- Signs:** This is used for inputting symbols.



Inputting characters

There are two methods for inputting characters.

Character input 1

- 1 Press **▲**, **▼**, **◀** or **▶** to select the character to be input.

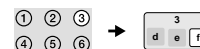
- 2 Press **ENTER**. The selected character will be input.

Character input 2

Example: Explained here is the procedure when you input "F" and "J".

- 1 Press the **numeric keys** continuously and select the character to be input.

To input F, press 3 twice.



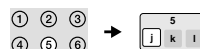
NOTE:

When the interval between the pressing **numeric keys** is 2 seconds or more in selecting the input character, the selected character will automatically be input.

- 2 Stop the key operation when you select the character to be input. The selected character will automatically be input.



- 3 Press the **numeric keys** where the following character is assigned.



- 4 When the character to be input is selected, stop the key operation. The selected character is automatically input.



Changing a disc name

Erasing a character

You can erase the input character.

Erasing method 1

- 1 Press ▲, ▼, ◀ or ▶ to select "Back".

Erasing method 2

- 2 Press ENTER. The last input character will be erased.

Erasing method 3

- 3 To erase the characters continuously, press ENTER. The input characters will be erased from the last to the top one by one.

Erasing method 2

- 1 Press CANCEL. The last input character is erased.

- 2 To erase the characters continuously, press CANCEL. The input characters will be erased from the last to the top one by one.

Erasing method 3

Use the cursor to select the character and erase it.

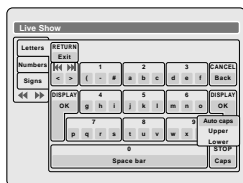
- 1 Press SKIP – or SKIP + to move the cursor after the character you want to erase.

- 2 Press CANCEL. Erase the character before the cursor position.

Selecting between uppercase and lowercase letters

You can select either uppercase or lowercase letters when modifying your titles, using the keyboard screen with the "Letters" tab.

- 1 Press STOP. (Or, press ▲, ▼, ◀ or ▶ to select "Caps", then press ENTER.)

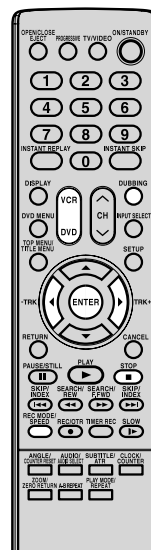


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Dubbing a tape onto a disc



You can record video or audio on a video tape onto a disc.



NOTES:

- Dubbing cannot be accomplished when
 - a copy protected tape is used.
 - disc protection is set.
 - disc has no recording space.
- Dubbing stops when
 - the video tape is played back to the end and stops.
 - recording space becomes full.
- The videos recorded from TV programs or movies can be used only for your personal enjoyment without permission of the copyright holder.

Preparation:

- Turn ON the TV and set to the video input mode.
- Load a source video tape and a disc for recording.
- Remove the erase protection tab of the source video tape to prevent the data from accidentally being erased.
- Confirm the disc space before operation.

- 1 Press DVD to set this unit to DVD mode. The DVD indicator will light.

- 2 Press REC MODE/SPEED and select the recording mode.
 - When REC MODE/SPEED is pressed each time, "SP", "LP", "SLP" or "XP" is selected in this order.
 - The recording mode is indicated on both the TV screen and the display window.
 - For the details of the recording mode, see page 52.

- 3 Press VCR and set the unit to VCR mode.



NOTE:

Confirm that the VCR indicator lights.

- 4 Press DUBBING.

- The unit is changed to DVD mode automatically.
- The VCR is waiting for playback and the DVD is waiting for recording. Then the following message will appear.

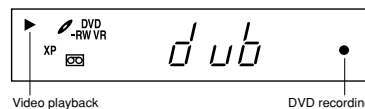
- 5 Press DUBBING, or press ◀ or ▶ to select "YES" and press ENTER. Dubbing starts.

- To cancel dubbing, press STOP, or select "NO" and press ENTER.



In dubbing, VCR playback, DVD recording and "dub" (dubbing) indicator appear on the display window.

- 6 To stop dubbing, press STOP.



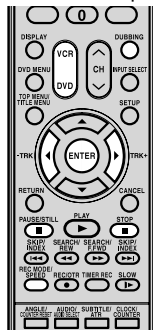
Dubbing

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Dubbing a disc onto a tape



You can record both video and audio from a disc to a video tape. When a disc with a copy guard is recorded onto the video tape, a distorted image is recorded onto the video tape.



NOTES:

- Dubbing cannot be accomplished when
 - a copy protected disc is used.
 - the erase prevention tab of video tape is removed.
- Dubbing stops when
 - the disc is played back to the end and stops.
 - no recording space on the Video tape remains.
- During dubbing, the unit is changed to interlaced scan mode automatically, if it has been previously set to progressive scan mode.
- If no special permission is obtained from the copyright owner, videos recorded from TV programs or movies can only be used for your own personal enjoyment.

Preparation:

- Turn ON the TV and set to the video input mode.
- Load a source disc and a video tape for recording.
- Confirm the remaining tape for recording before operation.

- 1 Press VCR to set this unit to VCR mode. The VCR indicator will light.

- 2 Press REC MODE/SPEED and select the recording mode.
 - When REC MODE/SPEED is pressed each time, "SP" or "SLP" is selected.
 - The recording mode is indicated on both the TV screen and the display window.
 - For the details of the recording mode, see page 48.

- 3 Press DVD and set the unit to DVD mode.



NOTE:

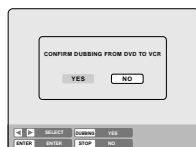
Confirm that the DVD indicator lights.

- 4 Press DUBBING.

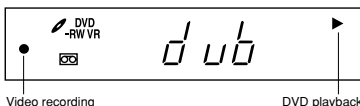
- The DVD is waiting for playback and the VCR is waiting for recording. Then the following message appears.

- 5 Press DUBBING, or press ◀ or ▶ to select "YES" and press ENTER. Dubbing starts.

- To cancel dubbing, press STOP, or select "NO" and press ENTER.



In dubbing, DVD playback, VCR recording and "dub" (dubbing) indicator appear on the display window.



- 6 To stop dubbing, press STOP.

Dubbing only the specified titles or the playlist

When you want to dub only specific titles or playlists recorded on the disc, start the playback of the desired title or playlist, and then immediately press DUBBING, STOP or PAUSE/STILL. If you press DUBBING, proceed from step 5 above. If you press STOP or PAUSE/STILL, proceed from step 4 above. The first few seconds of the title or playlist may not be recorded. When playback of the title or playlist is completed, the dubbing stops.

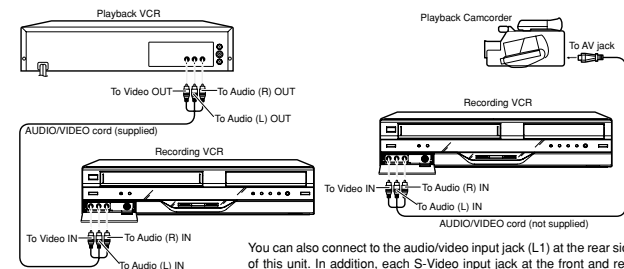
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Dubbing using other equipment



You can connect another VCR or camcorder to dubbing.

Typical connection: When using this unit as a recording device



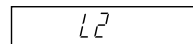
You can also connect to the audio/video input jack (L1) at the rear side of this unit. In addition, each S-Video input jack at the front and rear sides can be used for recording on the disc. (The S-Video input jack cannot be used for recording on the video tape.)

When a video is recorded using this unit

Preparation:

- Turn ON the TV and set the unit to the video input mode.
- Load a video tape where the erase-protection tab is not activated or a disc with enough recording space.
- To record onto a video tape, set the unit to VCR mode, whereas to record onto a disc, set it to DVD mode.

- 1 Press INPUT SELECT and set the channel to L2 (or L1).
 - L1 (LINE 1): on the rear panel
 - L2 (LINE 2): on the front panel
 Confirm that L2 (or L1) appears on the display window.



- 2 Press REC MODE/SPEED and select the recording mode.
 - VCR: SP or SLP (See page 48)
 - DVD: SP, LP, SLP or XP (See page 52)

- 3 Press REC/OTR on this unit, then press PAUSE/STILL.

- 4 Press the PLAY button on the playback device, then press the PAUSE/STILL button.

- 5 Release the recording pause and the playback still simultaneously to begin the duplicating process.

- 6 To stop dubbing, press STOP.

NOTES:

- If using a monaural VCR or other equipment, connect Audio (L) IN jack to Audio OUT using only one audio cable.
- When this unit is used as a playback device, a mark or a character displayed on the screen is also dubbed as an image. When the screen display is set to OFF, see "DISPLAY" on page 28.
- If no special permission is obtained from the copyright owner, videos recorded from TV programs or movies can only be used for your own personal enjoyment.
- You may not dub a copy protected video or DVD disc.

Dubbing

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Glossary

A-B Repeat Playback

Playback that repeats between two set points, A and B.

angle

Recorded onto some DVD discs are scenes which have been simultaneously shot from a number of different angles (the same scene is shot from the front, from the left side, from the right side, etc.). With such discs you can select the angle from which to view the scene.

auto chapter

Feature that automatically makes chapter marks on a DVD disc during recording.

auto clock

Feature that automatically sets the internal clock.

blue background

Feature that automatically changes unpleasant noise images to a blue screen when a channel without a broadcast or a channel on which the broadcast has ended has been selected.

BROWSER screen

Screen that appears when TITLE MENU is pressed during MP3, WMA or JPEG CD is inserted.

CABLE

Cable television.

chapter

A section within a title is called a "chapter".

Chase playback

Feature that playback from the beginning of a program currently being recorded.

copy guard

Copyright protection signal. Software and broadcasts that contain this signal cannot be recorded.

Dolby Digital

Dolby® Digital Recording enables consumers to record high-quality video with stereo sound on recordable DVD discs. The technology, when utilized instead of PCM recording, also saves recordable disc space, allowing for higher video resolution or extended recording time on each DVD. DVDs created using Dolby Digital Recording will play back on all DVD-Video players. *Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.*

DTS

This is a digital sound system developed by Digital Theater Systems for use in cinemas. This system uses 6 audio channels and provides accurate sound field positioning and realistic acoustics. (By connecting a DTS Digital Surround decoder, you can also listen to DTS Digital Surround sound.)

DVD menu

Menu recorded on a DVD-Video that enables the user to select subtitles language, dubbing, etc.

finalize

Operation that enables discs recorded or edited with this unit to be played back on other DVD players.

Instant replay

If INSTANT REPLAY is pressed during playback, playback returns to a point 10 sec earlier and resumes.

Instant Skip

When pressed during playback, playback jumps 30 sec ahead and resumes.

interlaced scanning

Technology that alternately displays odd-numbered scanning lines and even-numbered scanning lines. Also called "480i", "i" meaning "interlace".

letter box

Feature that displays black bands above and below the playback images during playback of a disc recorded in wide (16:9) format on a 4:3 TV connected to this unit.

MP3

One type of audio compression that uses MPEG1. This format compresses the sound to use up about 1/10 of the original file space, without impairing the original sound quality.

original title

The file created by recording something is called an "original title".

OTR

One-touch Timer Recording. Start a timed recording by pushing just one button (up to 6 hours).

pan scan

Feature that cuts the left and right edges of playback images to a 4:3 size during playback of a disc recorded in wide (16:9) format on a 4:3 TV connected to this unit.

parental control

Some discs control viewing according to the age of the viewer. A control level can be set for those types of discs.

Glossary

parental control settings

- Level 1: Adult discs and general discs (R-rated discs included) cannot be played back.
- Level 2 to 3: Adult discs and R-rated discs cannot be played back.
- Level 4 to 7: Adult discs cannot be played back. (Level 4 to 7 discs contain content children age 15 and younger may not see.)
- Level 8: All discs can be played back without restriction.

PBS

Acronym for Public Broadcast System. The PBS channel transmits data for auto clock setting.

playlist

User-created titles based on each original title.

Progressive scan

Technology that simultaneously displays odd-numbered scanning lines and even-numbered scanning lines from top to bottom. Also called "480p", "p" meaning "progressive".

region number

There is software that enables DVD playback in differing countries. The number of that kind of disc is called the "region number".

SETUP MENU

Menu that contains settings for various features of this unit, such as recording and playback. Timer recording is also set from the SETUP MENU.

slide show

Technique for flipping through and viewing many images (JPEG files).

subtitle language

Language used for subtitles of movies, etc. Viewers can watch in a language of their choosing.

title

A program recorded on a disc is called a "title".

title menu

Menu that lists titles and tracks recorded on the disc. It is used for playback and disc editing.

top menu

Menu on a DVD-Video for selecting chapters for playback, subtitle language, etc. Some DVD-Video call this top menu "Title".

track

A song on an Audio CD is called a "track".

TRACK INFO screen

The screen that appears when TITLE MENU is pressed, if an Audio CD disc is in the unit.

Video mode

This recording format is compatible with commercially available DVD players.

virtual surround

Technology that converts audio that is not recorded in surround sound into audio that assimilates surround sound.

VR mode

This recording format is the basic DVD-RW recording format, and lets you enjoy the various editing functions available with this unit.

Language code list

Enter the appropriate code number for the initial settings "DVD MENU", "AUDIO" and/or "SUBTITLE" (see page 24).

Language Name	Code	Language Name	Code	Language Name	Code	Language Name	Code
Abkhazian	1112	Fiji	1620	Lingala	2224	Singhalese	2919
Afar	1111	Finnish	1619	Lithuanian	2230	Slovak	2921
Afrikaans	1116	French	1628	Macedonian	2321	Slovenian	2922
Albanian	2927	Frisian	1635	Malagasy	2317	Somali	2925
Amharic	1123	Galician	1722	Malay	2329	Spanish	1529
Arabic	1128	Georgian	2111	Malayalam	2322	Sundanese	2931
Armenian	1835	German	1415	Maltese	2330	Swahili	2933
Assamese	1129	Greek	1522	Maori	2319	Swedish	2932
Aymara	1135	Greenlandic	2122	Marathi	2328	Tagalog	3022
Azerbaijani	1136	Guarani	1724	Moldavian	2325	Tajik	3017
Bashkir	1211	Gujarati	1731	Mongolian	2324	Tamil	3011
Basque	1531	Hausa	1811	Nauru	2411	Tatar	3030
Bengali; Bangla	1224	Hebrew	1933	Nepali	2415	Telugu	3015
Bhutani	1436	Hindi	1819	Norwegian	2425	Thai	3018
Bihari	1218	Hungarian	1831	Oriya	2528	Tibetan	1225
Breton	1228	Icelandic	1929	Panjabi	2611	Tigrinya	3019
Bulgarian	1217	Indonesian	1924	Pashto, Pushto	2629	Tonga	3025
Burmese	2335	Interlingua	1911	Persian	1611	Turkish	3028
Byelorussian	1215	Irish	1711	Polish	2622	Turkmen	3021
Cambodian	2123	Italian	1930	Portuguese	2630	Twi	3033
Catalan	1311	Japanese	2011	Quechua	2731	Ukrainian	3121
Chinese	3618	Javanese	2033	Rhaeto-Romance	2823	Urdu	3128
Corsican	1325	Kannada	2124	Romanian	2825	Uzbek	3136
Croatian	1828	Kashmiri	2129	Russian	2831	Vietnamese	3219
Czech	1329	Kazakh	2121	Samoan	2923	Volapük	3225
Danish	1411	Kirghiz	2135	Sanskrit	2911	Welsh	1335
Dutch	2422	Korean	2125	Scots Gaelic	1714	Wolof	3325
English	1524	Kurdish	2131	Serbian	2928	Xhosa	3418
Esperanto	1525	Laotian	2225	Serbo-Croatian	2918	Yiddish	2019
Estonian	1530	Latin	2211	Shona	2924	Yoruba	3525
Faroese	1625	Latvian, Lettish	2232	Sindhi	2914	Zulu	3631

Problems and troubleshooting

Use the following check list for troubleshooting when you have problems with your unit. Consult your local dealer or service outlet if problems persist.

Be sure all connections are properly made when using with other units.

SYMPTOMS	POSSIBLE SOLUTIONS	PAGE
DVD/VCR		
DVD/VCR does not operate.	<ul style="list-style-type: none"> Make sure the power cord is plugged in. Try another AC outlet. Power is off, check fuse or circuit breaker. Unplug unit, then plug it back in. Select the DVD or VCR mode before operating. 	15 - - 15 33, 49
No picture.	<ul style="list-style-type: none"> Antenna connection is not correct or antenna cable is disconnected. The video channel is not in the correct position or the TV is not set to the video channel 3 or 4. Check the unit is connected correctly. The video input selector of the TV is not set to VIDEO. Set to VIDEO (or equivalent). Channel is set to the external mode. 	16-19 22 16-21 - -
No sound.	<ul style="list-style-type: none"> Check the unit is connected correctly. Check the input selector of the amplifier is set properly. The unit is in the Special playback mode. 	16-21 36, 50
The remote control does not function.	<ul style="list-style-type: none"> Aim at the remote control at the remote sensor. Operate within Approx. 7 meters or reduce the light in the room. Clear the path of the beam. The batteries are weak. Replace the batteries. Check the batteries are inserted correctly. 	15
No Cable TV reception	<ul style="list-style-type: none"> Check all Cable TV connections. Station or Cable TV system problems, try another station. 	
DVD		
Display is not shown in your language.	<ul style="list-style-type: none"> Select proper language in the SETUP MENU. 	24
Playback doesn't start.	<ul style="list-style-type: none"> No disc is inserted. The disc may be dirty. Clean up the disc. The unit cannot play DVD-ROMs, etc. 	33 9 9
Stopping playback, search, slow-motion play, repeat play, or program play, etc. cannot be performed.	<ul style="list-style-type: none"> Some discs may not do some of the functions. 	-
Recording Does not work.	<ul style="list-style-type: none"> Check the disc space, using the disc information. Check the disc for protection. Check if the video to be recorded is not "copy-guarded". Check that the number of recorded titles is 99 or less, using the disc information. Check the number of the total chapters for the recorded titles is 999, using the disc information. In a DVD-RW of Ver.1.0, recording in Video mode does not work. Check the disc type. 	35 28 53 35, 52 35, 52 10
A Disc recorded using this recorder cannot be played back in other players.	<ul style="list-style-type: none"> Check that the disc is finalized. Some DVD players will not play even if the disc has been finalized. If the disc was recorded in VR mode, the other player must be RW compatible in order to play the disc. 	27 11, 28 11, 28

Problems and troubleshooting / Video head cleaning

SYMPTOMS	POSSIBLE SOLUTIONS	PAGE
VCR		
TV recording does not work.	<ul style="list-style-type: none"> The erase prevention tab of the video cassette is broken off. The unit is in the external input mode. 	48, 54
Timer recording does not work.	<ul style="list-style-type: none"> The time is not set correctly. The recording start/end time is not set correctly. TIMER REC has not been pressed (⏻ is not lit). 	26 58 59
Noise bars on screen.	<ul style="list-style-type: none"> Tracking adjustment beyond range of automatic tracking circuit. Try Manual tracking adjustment. Video heads are dirty. The tape is worn or damaged. 	50 54 —
OTHER		
No picture, or screen is blurred or divided into two parts.	<ul style="list-style-type: none"> The progressive scan mode is active though the unit is connected to a TV via the VIDEO OUT jack. 	47
No 4:3 (16:9) picture	<ul style="list-style-type: none"> The setup does not match your TV. 	29
No on-screen display	<ul style="list-style-type: none"> Select DISPLAY/CALL "ON". 	28
Nothing appears in the display window	<ul style="list-style-type: none"> Check the DIMMER setting for SETUP. 	28
No surround sound	<ul style="list-style-type: none"> The setup does not match your stereo system. 	21
The unit or remote operation key is not functioning.	<ul style="list-style-type: none"> Turn off the unit and unplug the AC power cord for several minutes, then replug it. 	—
Playback does not start when the title is selected.	<ul style="list-style-type: none"> Check the Parental setup. 	25
Audio soundtrack and/or subtitle language is not changed when you playback a DVD.	<ul style="list-style-type: none"> Multilingual language is not recorded on the DVD disc. 	24
No subtitles	<ul style="list-style-type: none"> Some discs have no subtitles. Subtitles are cleared. Press SUBTITLE. 	41, 24
Angle cannot be changed.	<ul style="list-style-type: none"> Multi-angles are not recorded on the DVD disc. 	—
⏻ appears on the screen.	<ul style="list-style-type: none"> The function is prohibited with the unit or the disc. 	—

Video head cleaning

Video head clogging

The video heads are the means by which the DVD/VCR reads the picture from the tape during playback. In the unlikely event that the heads become dirty enough to be clogged, no picture will be played back. This can easily be determined if, during playback of a known good tape, there is good sound, but no picture (picture is extremely snowy). If this is the case, have the DVD/VCR checked by qualified service personnel.

NOTES:

- DO NOT ATTEMPT TO CLEAN THE VIDEO HEADS OR SERVICE THE UNIT BY REMOVING THE REAR COVER.
- Video heads may eventually wear out and should be replaced when they fail to produce clear pictures.
- To help prevent video head clogging, use only good quality VHS tapes. Discard worn out tapes.

Error/Warning message list

	ERROR/WARNING MESSAGE	CAUSE	POSSIBLE SOLUTIONS	PAGE
Power ON	SYSTEM ERROR PLEASE WAIT	The power was shut down without completing the termination process due to a power failure or disconnection of the AC cord plug. (Abnormal termination)	Wait until the message disappears.	—
	SYSTEM ERROR PLEASE WAIT DISC CHECKING	The power was abruptly turned off before writing to the disc was completed.	The data is now restoring.	—
	SYSTEM ERROR DISC MIGHT BE FAILED PRESS ENTER/SELECT	The data restoration was completed.	Press ENTER , then the screen returns to the normal display. The data may not be restored even if the restoration process is performed.	52
Playback	NO DISC	When a disc was not loaded in the unit, PLAY was pressed.	Load a disc.	33
	REGION CODE ERROR	A disc specified other than "Region 1" or "Region ALL" was loaded.	A disc specified other than "Region 1" or "Region ALL" cannot be played back.	9
	INCORRECT DISC - C104, C105, C106, C107	The disc cannot be identified.	Check the disc and load a proper disc.	9
Recording	NO DISC	When a disc was not loaded into the unit, REC/OTR was pressed.	Load a disc.	54
	PROCESSING PLEASE WAIT	The recording termination is processing.	Wait until the process is completed.	—
	RECORDING INTERRUPTED - C204	Disc became full during recording.	Erase unnecessary titles or load another disc and restart recording.	72
	CANNOT RECORD - C203	Recording was tried onto the disc having no space.	Check the disc space.	35
	CANNOT RECORD - C206	Recording was tried onto the disc which does not support recording.	Load a recordable disc.	10
	CANNOT RECORD, DISC PROTECTED	Disc erase-protection is applied.	RAM Disc: Turn the protect switch to OFF on the cartridge itself. Or turn OFF the protect from Disc Setup.	28
	CANNOT RECORD - C208	Recording was tried onto the finalized disc.	Undo finalization or load another disc for recording.	28
	CANNOT RECORD - C209	Adding data was tried onto the disc recorded in the other unit.	Load another disc for recording.	—
	CANNOT RECORD - C210	Adding data was tried to the disc where PC data was recorded.	Load another disc for recording.	—
	DISC ERROR - C205, C211, C212, C213	A scratch or contamination was found on the disc.	Check the disc and reload it, or use another disc for recording.	—
	CANNOT RECORD, EXCEEDS LIMITED NUMBER OF TITLES	99 titles were recorded on the disc.	Erase unnecessary titles or load another disc.	73
	CANNOT RECORD, EXCEEDS LIMITED NUMBER OF CHAPTERS	999 chapters exist on the disc.	Erase unnecessary chapters or load another disc.	70
	CANNOT RECORD PROTECTED IMAGE	Recording was attempted on a copy protected video.	You cannot record a copy protected video.	53
	RECORDING INTERRUPTED PROTECTED IMAGE	The video was changed to a copy-guard format in recording.	You cannot record a copy protected video.	53
	CANNOT RECORD IN VIDEO MODE COPY IMAGE ONCE ONLY	Recording was attempted of a "Copy Once" program onto a disc (Video mode).	Load a DVD-RW Ver. 1.1 or later (VR mode) with CPRM.	53
Dubbing	CANNOT RECORD ON DISC. THIS IS NOT CPRM DISC.	Recording was attempted of a "Copy Once" program onto a disc without CPRM.	Load a DVD-RW Ver. 1.1 or later (VR mode) with CPRM.	53
	SWITCHING TO INTERLACE OUTPUT FOR COPYING	Dubbing was initiated from a disc to a video tape in the progressive scan mode.	The mode is automatically changed to interlaced mode if dubbing from a disc to a video tape.	78
	CANNOT COPY DATA - C251	No video tape or disc is inserted as a source for the recording.	Load a video tape or disc into the source drive.	77, 78
	CANNOT COPY DATA - C254, C255	The source video or disc to be copied is copy-guarded.	You cannot dub a video containing copy-guarded material.	53
	COPYING INTERRUPTED	The video tape or disc became full during dubbing.	Load another video tape or disc for recording and restart.	77, 78
	DISC ERROR - C302, C303	Cannot Format disc due to a scratch or contamination on the disc.	Check the disc and reload it, or use another disc for recording.	—
	DISC ERROR - C304, C305	Cannot Finalize disc due to a scratch or contamination on the disc.	Check the disc and reload it, or use another disc for recording.	—
	DISC ERROR - C306	Cannot Undo Finalize disc due to a scratch or contamination on the disc.	Check the disc and reload it, or use another disc for recording.	—
	DISC ERROR - C307, C308	Cannot Protect disc ON/OFF due to a scratch or contamination on the disc.	Check the disc and reload it, or use another disc for recording.	—
	CANNOT EDIT	Editing cannot be performed due to a scratch or contamination on the disc.	Check the disc and reload it, or use another disc for recording.	—
Title Menu	CANNOT EDIT - C408	Combining chapters cannot be performed.	Chapter marks that have been added automatically in the erasing of a scene procedure cannot be erased.	70
	PROCESSING PLEASE WAIT	A process requiring a longer time such as editing is being performed.	Wait until the process is complete.	—

NOTE: Any error/warning message other than those above might appear. Take measures against such a message by using the possible solutions above.

Specifications

GENERAL

Power supply:	AC 120V 60Hz
Power consumption:	Operation: 29W Standby: 2.5W (if display window is off.)
Weight:	12.1 lbs (5.5 kg)
Dimensions:	Width : 16-15/16 inches (430 mm) Height : 3-1/2 inches (89.5 mm) Depth : 12-9/16 inches (318.5 mm)
Operating temperature:	41°F to 95°F (5°C to 35°C)
Operating humidity:	Less than 80% RH
Inputs/Outputs:	
Video:	In: 1Vp-p/75 ohm Out: 1Vp-p/75 ohm
Audio:	In: -8dBm/50k ohm Out: -8dBm/1k ohm
Antenna:	UHF/VHF IN/OUT: 75 ohm coaxial

VCR section

Video head:	4 Rotary Heads
Audio track:	Hi-Fi Sound - 2 Tracks / MONO Sound - 1 Track
Tuner:	181 Channel Freq. Synthesized VHF 2-13 UHF 14-69 Cable TV 14-36 (A)-(W) 37-59 (AA)-(WW) 60-85 (AAA)-(ZZZ) 86-94 (86)-(94) 95-99 (A)-(A-1) 100-125 (100)-(125) 01 (5A)
RF channel output:	Channel 3 or 4, Switchable
F.WD/REW Time:	Approx. 1 minute and 48 seconds (with T-120 Cassette Tape)(at+25°C)
Hi-Fi frequency response:	20Hz to 20,000Hz
Hi-Fi dynamic range:	More than 90dB

DVD section

Signal system:	NTSC
Applicable disc:	DVD (12cm), CD (12cm)
Recording format:	DVD-Video Recording (VR mode) DVD-VIDEO (Video mode)
Recording discs:	DVD-RAM, DVD-RW, DVD-R
Recording time:	XP: Approx. 60 min SP: Approx. 120 min LP: Approx. 240 min SLP: Approx. 360 min
Audio characteristics frequency response:	DVD: 4Hz - 22kHz CD: 4Hz - 20kHz
S/N Ratio:	90dB
Harmonic distortion:	Less than 1%
Wow and flutter:	Less than 0.01% Wrms
Dynamic range:	More than 90dB
Output:	Video : (RCA) 1 Vp-p/75 ohm Audio : (RCA) -12 dBm/1k ohm Digital Audio : 0.5Vp-p/75 ohm
Pickup:	CD : Wavelength: 780 nm Maximum output power: 8.5 mW DVD : Wavelength: 660 nm Maximum output power: 120 mW

ACCESSORIES:

- Remote control (SE-R0180) x 1
- 75 ohm Coaxial Cable x 1
- AUDIO/VIDEO Cable x 1
- Battery R03/AAA x 2

- This model complies with the above specifications.
- Designs and specifications are subject to change without notice.
- This model may not be compatible with features and/or specifications that may be added in the future.

Limited warranty

Limited United States Warranty

Digital Audio Video ("DAV") Product - Depot Repair Warranty

Toshiba America Consumer Products, L.L.C. ("TACP") makes the following limited warranties to original consumers in the United States. THESE LIMITED WARRANTIES EXTEND TO THE ORIGINAL CONSUMER PURCHASER OR ANY PERSON RECEIVING THIS DAV PRODUCT AS A GIFT FROM THE ORIGINAL CONSUMER PURCHASER AND TO NO OTHER PURCHASER OR TRANSFEREE.

DAV PRODUCTS PURCHASED IN THE U.S.A. AND USED ANYWHERE OUTSIDE OF THE U.S.A., INCLUDING, WITHOUT LIMITATION, CANADA AND MEXICO, ARE NOT COVERED BY THESE WARRANTIES.

DAV PRODUCTS PURCHASED ANYWHERE OUTSIDE OF THE U.S.A., INCLUDING, WITHOUT LIMITATION, CANADA AND MEXICO, AND USED IN THE U.S.A., ARE NOT COVERED BY THESE WARRANTIES.

Limited Ninety (90) Day Warranty on Labor

TACP warrants this DAV Product and its parts against defects in materials or workmanship for a period of ninety (90) days after the date of original retail purchase. DURING THIS PERIOD, TACP WILL, AT TACP'S OPTION, REPAIR OR REPLACE A DEFECTIVE PART WITH A NEW OR REFURBISHED PART WITHOUT CHARGE TO YOU FOR PARTS OR LABOR.

Limited One (1) Year Warranty on Parts

TACP further warrants the parts in this DAV Product against defects in materials or workmanship for a period of one (1) year after the date of original retail purchase. DURING THIS PERIOD, TACP WILL, AT TACP'S OPTION, REPAIR OR REPLACE A DEFECTIVE PART WITH A NEW OR REFURBISHED PART WITHOUT CHARGE TO YOU FOR THE PART, PROVIDED THAT IF A DEFECTIVE PART IS REPAIRED OR REPLACED AFTER NINETY (90) DAYS AFTER THE DATE OF ORIGINAL RETAIL PURCHASE, THE CONSUMER SHALL PAY ALL LABOR CHARGES INVOLVED IN THE REPAIR OR REPLACEMENT THEREOF.

Rental Units

The warranty for DAV Product rental units begins on the date of the first rental or thirty (30) days after the date of shipment to the rental firm, whichever comes first.

Commercial Units

DAV Products sold and used for commercial purposes have a limited warranty for all parts and labor, which warranty begins on the date of original retail purchase and ends on the date that is ninety (90) days thereafter.

Owner's Manual and Product Registration Card

Read this owner's manual thoroughly before operating this DAV Product.

Complete and mail the enclosed product registration card or register your DAV Product on-line at www.iacp.toshiba.com/service as soon as possible. By registering your DAV Product you will enable TACP to bring you new products specifically designed to meet your needs and help us to contact you in the unlikely event a safety notification is required under the U.S. Consumer Product Safety Act. Failure to complete and return the product registration card does not diminish your warranty rights.

Your Responsibility

THE ABOVE WARRANTIES ARE SUBJECT TO THE FOLLOWING CONDITIONS:

- You must retain your bill of sale or provide other proof of purchase.
- All warranty servicing of this DAV Product must be made by the Depot Warranty Repair Center specified by the TACP Consumer Solutions Center.
- The warranties from TACP are effective only if the DAV Product is purchased and operated in the Continental U.S.A. or Puerto Rico.
- Labor service charges for set installation, setup, adjustment of customer controls, and installation or repair of antenna systems are not covered by this warranty. Reception problems caused by inadequate antenna systems are your responsibility.
- Warranties extend only to defects in materials or workmanship as limited above, and do not extend to any DAV Product or parts that have been lost or discarded by you or to damage to the DAV Product or parts caused by fires, misuse, accident, Acts of God (such as lightning or fluctuations in electric power), improper installation, improper maintenance, or use in violation of instructions furnished by TACP; use or malfunction through simultaneous use of this DAV Product and connected equipment; or to units that have been modified or had the serial number removed, altered, defaced, or rendered illegible.

CAUTION

THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

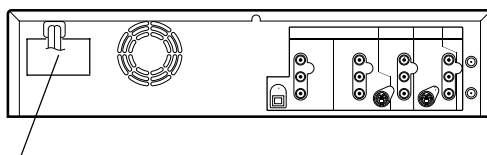
TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

USE OF CONTROLS, ADJUSTMENTS OR THE PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

TO PREVENT DIRECT EXPOSURE TO LASER BEAM, DO NOT TRY TO OPEN THE ENCLOSURE. VISIBLE LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

Location of the required Marking

The rating sheet and the safety caution are on the rear of the unit.



CERTIFICATION: COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

PREPARATION OF SERVICING

The laser diode used for a pickup head may be destroyed with external static electricity.

Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, the life of the product may be shortened.

Please perform the following measure against static electricity, be careful of destruction of a laser diode at the time of repair.

- Place the unit on a workstation equipped to protect against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

IMPORTANT SERVICE SAFETY INFORMATION

Safety precautions to be followed during servicing:

1. Parts marked with an \triangle are critical parts for safety. Replace only with the one described in the parts list.
2. Before returning the DVD product to the customer, make the appropriate leakage current check or resistance measurements to ensure that exposed parts are properly insulated from the supply circuit.

A leakage current check is recommended for this unit. Plug the AC line cord directly into a 120V 60Hz AC outlet (do not use an isolation transformer for this check). Use a leakage current tester (Fig. 1) or a metering system which complies with Underwriters Laboratories (UL 1492). Measure for current from all exposed metal parts of the cabinet to a known earth ground: particularly, any exposed metal part having a return path to the chassis. Any current measured must not exceed 0.5mA. Any measurement not within the limits outlined above are indicative of a potential shock hazard and corrective action must be taken before returning the unit to the customer.

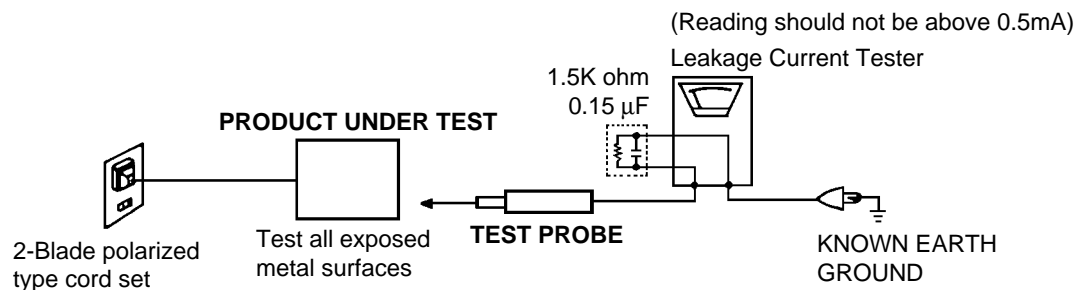


Fig. 1 AC Leakage Test

IMPORTANT SAFEGUARDS

1. READ INSTRUCTIONS

All the safety and operating instructions should be read before the unit is operated.

2. RETAIN INSTRUCTIONS

The safety and operating instructions should be retained for future reference.

3. HEED WARNINGS

All warnings on the unit and in the operating instructions should be adhered to.

4. FOLLOW INSTRUCTIONS

All operating and use instructions should be followed.

5. CLEANING

Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. ATTACHMENTS

Do not use attachments not recommended by the unit's manufacturer as they may cause hazards.

7. WATER AND MOISTURE

Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.

8. ACCESSORIES

Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer.

- 8A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. VENTILATION

Slots and openings in the cabinet and in the back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

10. POWER SOURCES

This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the operating instructions.

11. GROUNDING OR POLARIZATION

This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If your unit is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This too, is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

12. POWER-CORD PROTECTION

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

13. LIGHTNING

To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.

14. POWER LINES

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.

15. OVERLOADING

Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.

16. OBJECT AND LIQUID ENTRY

Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

PORTABLE CART WARNING
(symbol provided by RETAC)



S3125A

17. OUTDOOR ANTENNA GROUNDING

If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

18. SERVICING

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

19. DAMAGE REQUIRING SERVICE

Unplug this unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a. When the power-supply cord or plug is damaged.
- b. If liquid has been spilled, or objects have fallen into the unit.
- c. If the unit has been exposed to rain or water.
- d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
- e. If the unit has been dropped or the cabinet has been damaged.
- f. When the unit exhibits a distinct change in performance, this indicates a need for service.

20. REPLACEMENT PARTS

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original parts.

Unauthorized substitutions may result in fire, electric shock or other hazards.

21. SAFETY CHECK

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

22. WALL OR CEILING MOUNTING

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

23. HEAT

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

24. DISC TRAY

Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

25. CONNECTING

When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause an electric shock and serious personal injury. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

26. SOUND VOLUME

Reduce the volume to the minimum level before you turn on the product. Otherwise, sudden high volume sound may cause hearing or speaker damage.

27. SOUND DISTORTION

Do not allow the product output distorted sound for a longtime. It may cause speaker overheating and fire.

28. HEADPHONES

When you use the headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

29. LASER BEAM

Do not look into the opening of the disc tray or ventilation opening of the product to see the source of the laser beam. It may cause sight damage.

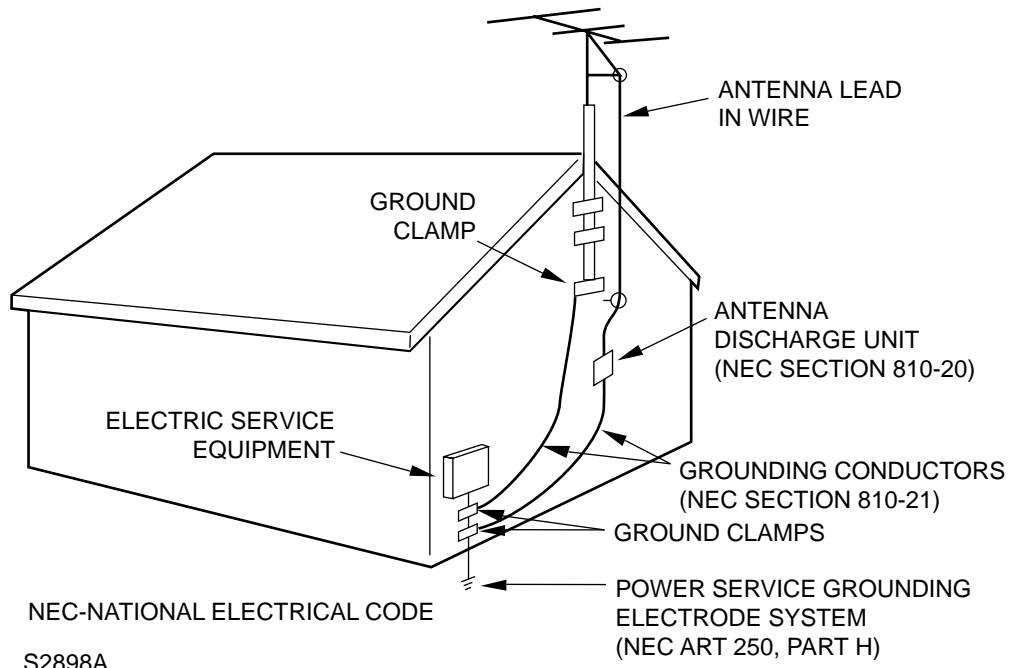
30. DISC

Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

31. NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet, Front Cabinet and DVD Block. (Refer to item 1 of the **DISASSEMBLY INSTRUCTIONS.**)
2. Remove the screw ① of the Deck Chassis and remove the Loading Motor. (Refer to Fig. 2)
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape.
4. Rotate the Clutch Ass'y either derrection to wind the Video Tape in the Cassette Case.
5. Repeat steps 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch the tape.

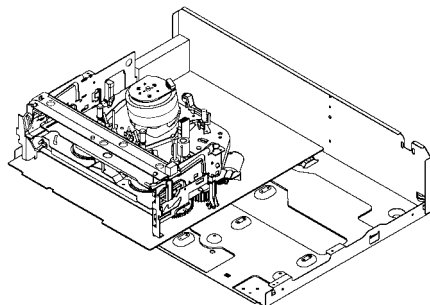


Fig. 1

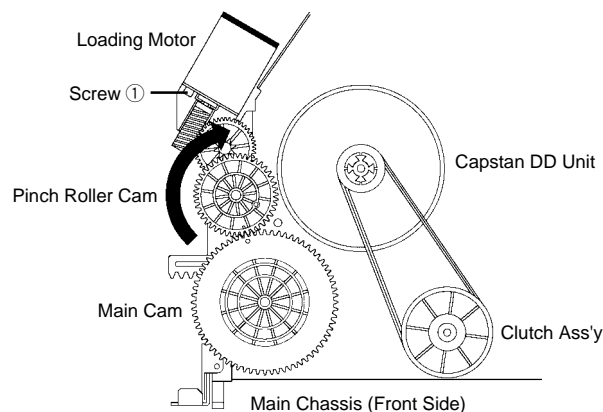


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet and Front Cabinet. (Refer to item 1 of the **DISASSEMBLY INSTRUCTIONS.**)
2. Insert a fine rod (wire etc.) into the hole of the DECK CD as shown by the arrow. (Refer to Fig. 1)
The Tray is opened.
3. Manually open the Tray.

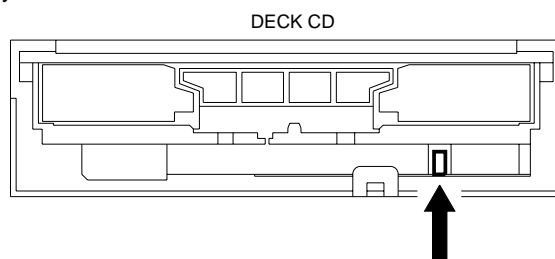


Fig. 1

PARENTAL CONTROL - RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Press and hold the '7' key on the remote control unit.
3. Simultaneously press and hold the 'STOP' key on the front panel.
4. Hold both keys for more than 2 seconds.
5. The On Screen Display message 'PASSWORD UNLOCK' will appear.
6. The 4 digit password has now been cleared

NOTE: No indications on the screen when the Parental Lock is setting.

TRAY LOCK

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Press and hold the '0' key on the remote control unit.
3. Simultaneously press and hold the 'STOP' key on the front panel.
4. Hold both keys for more than 2 seconds.
5. Press the OPEN/CLOSE key on the front panel to check the Tray Lock setting.

NOTE: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Simultaneously press and hold the 'PLAY' button and 'CH UP' button on the front panel.
3. Hold both keys for more than 2 second.
4. The On Screen Display message 'FACTORY INITIALIZE' will appear.
5. The Tray Lock has now been cleared.
6. Turn Unit OFF.

NOTE: The above procedure will reset ALL of the player's settings to the default factory state.

ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)



Caution:

- Pb free solder has a higher melting point than standard solder;
Typically the melting point is 50°F~70°F(30°C~40°C) higher.
Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

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CHASSIS REPLACEMENT PARTS LIST	K2-1, K2-2
ELECTRICAL REPLACEMENT PARTS LIST	K3-1~K3-40

GENERAL SPECIFICATIONS

G-1	Outline of the product		DVD-R/-RW/-RAM Video Recorder & VHS Player/Recorder
G-2	DVD System	Color System	NTSC
		Disc Format	DVD-R/-RW/-RAM
		Rec	DVD-R/-RW/-RAM, DVD-Video, CD-DA, CD-R/-RW, Video CD, SVCD
		Play	
		Disc Diameter	120 mm
		Deck	SW-9573
		Rec Time (Approx.)	1 hour
		at 4.7GB Disc	2 hour
		XP	4 hour
		SP	6 hour
G-3	VCR System	LP	
		SLP	
		Search speed	Fwd 4 step
			2-45 times (DVD)
		Actual	4-40 times (CD)
			Rev 4 step
		Actual	2-45 times (DVD)
			4-40 times (CD)
		Slow speed	Fwd 1/8-1/2 times
		Actual	--
G-4	Tuning System	System	VHS Player / Recorder
		Video System	NTSC
		Hi-Fi STEREO	Yes
		NTSC PB(PAL60Hz)	No
		Deck	OVD-7S
		Heads Video Head	4Head
		FM Audio Head	2Head
		Audio / Control	Mono / Yes
		Erase (Full Track Erase)	Yes
		Erase (Normal Audio Track Erase)	No
G-5	Power	Tape Rec	-
		Speed	SP/SLP
		Play	-
		NTSC	SP/LP/SLP
		Fast Forward / Rewind Time (Approx.) at 25oC	FF/REW: 1'48"/1'48"
		with Cassette	T-120
		Forward/Reverse	NTSC or PAL-M
		Picture Search	SP/LP/SLP = 3x,5x / 7x,9x / 9x, 15x
		Frame Advance	-
		Slow Speed	Yes
G-6	Tuning System	Broadcasting System	US System M
		Tuner and Receive CH	1Tuner
		System	US (w/CABLE)
		Destination	2-69, 4A, A-5~A-1, A~I, J~W, W+1~W+84
		CH Coverage	
		Intermediate Frequency	45.75 MHz
		Picture (FP)	41.25 MHz
		Sound (FS)	4.50 MHz
		FP-FS	
		Preset CH	-
G-7	Power	RF Converter Output	Yes
		Channel	3 or 4ch
		Level/Impedance	66dBu/75 ohm
		Sound Selector	No
		Stereo/Dual TV Sound	US-ST
		Tuner Sound Muting	Yes
		Power Source	120V, 60Hz
		AC	-
		DC	
		Power Consumption	29 W at 120V 60Hz
G-8	Power	Stand by (FIP Off)	2.5 W at 120V 60Hz
		Stand by	3.5 W at 120V 60Hz
		Per Year	-- W
		Protector	Yes
		Power Fuse	Yes
		Safety Circuit	Yes
		IC Protector (Micro Fuse)	Yes

GENERAL SPECIFICATIONS

G-6	Regulation		Safety	UL	
			Radiation	FCC	
			Laser	DHHS	
G-7	Temperature		Operation	5oC - 35oC	
			Storage	-20oC - 60oC	
G-8	Operating Humidity			Less than 80% RH	
G-9	Signal	Video Signal	Output Level	1 V p-p / 75 ohm (DVD, VCR)	
			S/N Ratio (Weighted)	65dB (DVD-Video) 50dB (VCR)	
			Horizontal Resolution	500 Lines (DVD-Video) 230 Lines (VCR)	
		RGB Signal	Output Level	--	
			Audio Signal	Input Level Microphone	--
				Input Level Line	-8 dBm / 50k ohm (VCR, 0dBm=0.775Vrms)
				Output Level Line	-8 dBm / 1k ohm (VCR, 0dBm=0.775Vrms) -12dB / 1k ohm (DVD, -20dBfs 0dBfs=2.0Vrms)
			Digital Output Level	0.5 V p-p / 75 ohm (DVD)	
			S/N Ratio at (Weighted)	90dB (DVD-Video), 42dB (VCR at SP)	
			Harmonic Distortion (1KHz) Typical	0.02% (DVD-Video), 1.5% (VCR at SP)	
			Frequency Response : DVD Mode at DVD	4 Hz - 22 kHz	
			DVD Mode at VIDEO CD	4 Hz - 20 kHz	
			DVD Mode at CD	4 Hz - 20 kHz	
			VCR Mode at SP	100 Hz - 10 kHz	
			VCR Mode at LP	--	
			VCR Mode at SLP	100 Hz - 4 kHz	
			Hi-Fi Audio Signal	Dynamic Range : More than	90dB
				Frequency Response	20Hz ~20kHz
	Wow And Flutter : Less than	0.01 %Wrms			
	Channel Separation : More than	60 dB			
	Harmonic Distortion : Less than	0.01			

GENERAL SPECIFICATIONS

G-10	On Screen Display (DVD)	Menu	Yes	
		Menu Type	Character	
		Setup	Yes	
		System Setup	Yes	
		Language	Yes	
		OSD Language	Yes	
		DVD Menu	Yes	
		Audio	Yes	
		Subtitle	Yes	
		Parental	Yes	
		Password Lock/Unlock	Yes	
		Rating Level	Yes	
		Clock	Yes	
		Clock Set	Yes	
		Auto Clock	Yes	
		Standard Time	Yes	
		Daylight Saving Time	Yes	
		Disc Setup	Yes	
		New Disc Format	Yes	
		Reformat as DVD VR	Yes	
		Reformat as DVD Video	Yes	
		Finalize	Yes	
		Protect Disc	Yes	
		Undo Finalize	Yes	
		DVD-RAM Physical Format	Yes	
		Other	Yes	
		Dimmer	Yes	
		Display/Call On/Off	Yes	
		AV Setup	Yes	
		AV Setup1	Yes	
		TV Screen	Yes	
		Still Mode	Yes	
		No Noise Background		No
		Line1 Input	Yes	
		Line2 Input	Yes	
		AV Setup2	Yes	
		Brightness	Yes	
		Gamma		No
		DNR		No
		E.B.L. (Enhanced Black Level)	Yes	
		Audio	Yes	
		DRC (Dynamic Range Control)	Yes	
		Virtual Surround (Spatializer(N-2-2))	Yes	
		External Audio Input Selection	Yes	
		SAP On/Off	Yes	
		Rec Setup	Yes	
		Initial Rec Mode	Yes	
		Initial Rec To	Yes	
		Auto Chapter	Yes	
		Index Picture	Yes	
		Just Record		No
		Black Level (REC)	Yes	
		CH Setup	Yes	
		TV/CABLE Select	Yes	
		Auto CH Memory	Yes	
		Add / Delete	Yes	
		Other	Yes	
		JPEG Interval	Yes	

GENERAL SPECIFICATIONS

G-10	Title Menu (VR Mode)	Yes	
		Chapter	
		Add Chapter Mark	Yes
		Combine Chapters	Yes
		Play	Yes
		Rename Title	Yes
		Title Protect	No
		Thumb Nail Setting	No
		Delete Title	Yes
		Title Combine	No
		Title Divide	No
		Edit Title	Yes
		Rename Disc	Yes
		Genre	No
		Play List	
		Play	Yes
		Chapter	No
		Rename Title	Yes
		Delete Title	Yes
		Title Combine	Yes
		Title Divide	No
		Edit Title	Yes
	Title Menu (Video Mode)	Yes	
		Chapter	No
		Chapter Mark Add	No
		Chapter Mark Delete	No
		Play	Yes
		Rename Title	Yes
		Title Protect	No
		Thumb Nail Setting	No
		Delete Title	No
		Title Combine	No
		Title Divide	No
		Edit Title	No
		Rename Disc	Yes
		Genre	No
		Play List	No
		Chapter	No
		Title Name	No
		Title Delete	No
		Title Combine	No
		Title Divide	No
		Cut	No
	Dubbing	DVD >>> VCR	Yes
		VCR >>> DVD	Yes
		Disc Information	Yes
		Disc Type	Yes
		Disc Remain Time	Yes
		Open	Yes
		Close	No
		No disc	Yes
		Reading	Yes
		Play	Yes
		Play Bar (Time-Shift)	Yes
		Pause/Still	Yes
		Stop	Yes
		Prohibit Mark	Yes
		Step	Yes
		Skip (>>)	Yes
		Skip (<<)	Yes
		Random	Yes (CD, Video CD, SVCD)
		Repeat	Yes
		Slow+	Yes
		Slow-	No
		Search+	Yes
		Search-	Yes
		Time Search (Jump)	Yes
		Resume	Yes
		Title No.	Yes
		Chapter No.	Yes
		Track No.	Yes
		Time	Yes
		Subtitle No.	Yes
		Angle No.	Yes
		Vocal On/Off	Yes
		Audio No.	Yes
		Audio L/R	Yes (Video CD, SVCD)
		Zoom	Yes
		Marker No.	No
		Program Play Back	Yes (CD, MP3, WMA, Video CD, SVCD)
		MP3 / WMA / JPEG	Yes
		Folder Name	Yes
		File Name	Yes
		File No	No
		Time	Yes
		Track No	No
		Progressive Scan Out On/Off	Yes

GENERAL SPECIFICATIONS

	On Screen Display (VCR)	Menu	Menu Type		Yes
		Play/Stop/FF/Rew/Rec/OTR (ITR)/T-Rec/Pause/Eject/Tape In (Symbol Mark)			Character
					Yes
			CH/AV (LINE)		Yes
			Clock		Yes
			Repeat		Yes
			Tape Counter		Yes
			Index		Yes
			Tape Speed		Yes
			Decoder		No
			Sound		Yes
			ATR / Manual Tracking		Yes
G-11	OSD Language	DVD OSD			English, French, Spanish
		VCR OSD			English, French, Spanish
G-12	Clock, Timer and Timer Back-up	Calendar			1990/1/1 ~ 2081/12/31
		Timer Events			12 Program / 1Month
		One Touch Recording Max Time			6 hours
		Timer Back-up (at Power Off Mode)			30min
G-13	Display	Display			Yes
		Display Type			6Digit Fluorescent Indicator
		Clock			Yes (12h)
			AM		No
			PM		Yes
		Counter	VCR		Yes (hour: min: sec)
			DVD		Yes (hour: min: sec)
			CD		Yes (min: sec)
		TV/VIDEO			Yes
		CD			Yes
		DVD			Yes
			VR Mode		Yes
			Video Mode		No
		DVD-R			Yes
		DVD-RW			Yes
		DVD+R			No
		DVD+RW			No
		DVD-RAM			Yes
		Disc In			Yes
		Tape In			Yes
		T-Rec			Yes
		XP			Yes
		SP			Yes
		LP			Yes
		SLP			Yes
		EP			No
		VP			No
		Counter Remain			No
		Chapter			No
		Title			No
		Track No.			Yes
		Repeat (A-B/All)			No
		Play (VCR Side)			Yes
		Pause / Still / Step (VCR Side)			Yes
		Rec (VCR Side)			Yes
		Play (DVD Side)			Yes
		Pause / Still / Step (DVD Side)			Yes
		Rec (DVD Side)			Yes
		RF Output CH			Yes
		Eject			Yes
		Stop			No
		FF / Cue			No
		REW / Review			No
		OTR (ITR)			No
		Hi-Fi			No
		CH/AV			Yes
		BS			No
		CABLE			Yes
		Progressive Scan Out			Yes
		PBC (Play Back Control)			No

GENERAL SPECIFICATIONS

G-14	Remote Control	Unit	RC-KZ
		Glow in Dark Remocon	Yes
		LCD	No
		Format	TOSHIBA
		Remocon Format	TOSHIBA
		Custom Code	45-BC
		Power Source	3V
		Voltage (D.C)	UM-4 x 2 pcs
		UM size x pcs	
		Total Keys	51 Keys
		Keys	
		POWER	Yes
		OPEN/CLOSE/EJECT	Yes
		DVD	Yes
		VCR	Yes
		1	Yes
		2	Yes
		3	Yes
		4	Yes
		5	Yes
		6	Yes
		7	Yes
		8	Yes
		9	Yes
		0	Yes
		0 / 10	No
		11	No
		12	No
		T-REC	Yes
		INPUT SELECT	Yes
		CANCEL	Yes
		RETURN	Yes
		DISPLAY	Yes
		TOP MENU / TITLE LIST	Yes
		CH+	Yes
		CH-	Yes
		UP	Yes
		DOWN	Yes
		LEFT/ TRACKING-	Yes
		RIGHT / TRACKING+	Yes
		ENTER	Yes
		DVD MENU	Yes
		SETUP	Yes
		STOP	Yes
		PLAY	Yes
		PAUSE / STILL / STEP	Yes
		<<SKIP / INDEX-	Yes
		<<SEARCH / REW	Yes
		SEARCH>> / F.FWD	Yes
		SKIP>> / INDEX+	Yes
		ONE TOUCH REPEAT	Yes
		CM SKIP	Yes
		<<SLOW	No
		SLOW>>	Yes
		REC / OTR	Yes
		REC MODE / SPEED	Yes
		DUBBING	Yes
		AUDIO / AUDIO SELECT	Yes
		MARKER	No
		ZOOM / ZERO RETURN	Yes
		REPEAT A-B	Yes
		ANGLE / COUNTER RESET	Yes
		SUBTITLE / ATR	Yes
		PLAY MODE / REPEAT	Yes
		CLOCK / COUNTER	Yes
		CHAPTER MARK	No
		NAVI MARK	No
		TV / VIDEO	Yes
		PROGRESSIVE	Yes

GENERAL SPECIFICATIONS

G-15	Features (DVD & VCR)	Auto Power Off		No
		CM Skip (30sec x 6 Times)	Yes	
		Copy (Tape to Disc, Disc to Tape)	Yes (By Conditioning)	
		VIDEO PLUS+ (SHOWVIEW, G-CODE)		No
		Auto CH Memory	Yes	
		Area Code		No
		Just Clock		No
		Auto Clock Set	Yes	
		CABLE	Yes	
		MTS (SAP)	Yes	
		Energy Star		No
		Analog BS		No
		Power On Memory		No
	Features (DVD)	Echo		No
		Mic Mixing		No
		DV Rec		No
		Time-Shift Playback	Yes	
		Video CD Playback	Yes	
		SVCD Playback	Yes	
		MP3 Playback	Yes	
		WMA Playback	Yes	
		JPEG Playback	Yes	
		Progressive Scan Out	Yes	
		Digital Out	(Dolby Digital)	Yes
			(MPEG)	Yes
			(PCM)	Yes
			(DTS)	Yes
		Down Mix Out	(Dolby Digital)	Yes
			(DTS)	
		Spatializer (N-2-2)	Yes	No
		Qsound		No
		Screen Saver		No
		Auto Stop		No
		Tray Lock	Yes	
		One Touch Repeat	Yes	
		Audio DAC	192kHz / 24bit	
	Features (VCR)	Auto Head Cleaning		No
		Auto Power Off		No
		Forward/Reverse Picture Search	Yes	
		Index Search	Yes	
		SQPB	Yes	
		Rec End Search		No
		CS Easy		No
G-16	Accessories	Owner's Manual	Language	English
			w/Guarantee Card	Yes
		Remote Control Unit		Yes
		Battery		Yes
			UM size x pcs	UM-4 x 2 pcs
			OEM Brand	--
		Blank DVD-RW DISC (4.7GB)		No
		Blank DVD-R DISC (4.7GB)		No
		Blank DVD-RAM Disc (4.7GB)		No
		Guarantee Card		No
		Registration Card	Yes	
		Warning Sheet		No
		Service Station List		No
		Important Tag		No
		AC Plug Adapter		No
		Quick Setup Sheet	Yes	
		Information Sheet (Return, Disc Eject)	Yes(Disc Eject:Feb O/R Only)	
		AC Cord		No
		AV Cord	Yes (1.2m)	
		75 Ohm Coaxial Cable	Yes (0.9m)	
		S-Video Cable		No
		21pin cable		No
		800 No Sticker		No
		Toll Free Insert Sheet		No
		Safety Tip		No
		Netflix Card	Yes	
		PVC Warning Sheet	Yes	

GENERAL SPECIFICATIONS

G-17	Interface	Switch	Front	Power	Yes	
				Play	Yes	
				Eject (VCR)	Yes	
				Stop	Yes	
				Rec / OTR	Yes	
				Open / Close (DVD)	Yes	
				CH +	Yes	
				CH -	Yes	
				FF / Search(>>)	Yes	
				Rew / Search(<<)	Yes	
				Still / Pause	No	
				Shuttle (Search / REV / FWD)	No	
				Dubbing	Yes	
				DVD	Yes	
				VCR	Yes	
		Rear	Main Power SW	No		
			S-Video / Component Video Selector	No		
			RF Out (Slide SW)	No		
			Main Power SW	No		
		Volume	Phones Volume	No		
			Mic Volume	No		
			Echo Volume	No		
		Terminals	Front	Video In	RCA x1(Yellow) S-Video x 1 (DVD Rec Only)	
				Audio In	RCA x 2 (Stereo, White/Red)	
				DV In (IEEE1394)	No	
				Rear	Video Output	RCA x1(Yellow) S-Video (S2) x1 (DVD,VCR) Component x1 (RCA 3pin, DVD Signal Only)
					Audio Output	RCA x 2 (Stereo, White/Red) RCA x 2 (DVD Signal Only, Stereo, White/Red) Coaxial x 1 (Digital Audio, DVD Signal Only)
					Optical Out	Yes (Digital Audio, DVD Signal Only)
					Video In	RCA x1(Yellow) S-Video x 1 (DVD Rec Only)
					Audio In	RCA x 2 (Stereo, White/Red)
					Detect Input / Output	No
				Bit Stream Input / Output	No	
				RF Input / Output	Yes	
				BS Input / Output	No	
			Euro Scart	No		
			AC Inlet	No		
			Indicator	LED	Power	No
					Rec	No
					T-Rec	No
					TV/VCR	No
					DVD	Yes (Blue)
					VCR	Yes (Green)
					Surround	No
					Level Meter	No

G-18	Set Size	Approx. W x D x H (mm)	430 x 318.5 x 89.5	
G-19	Weight	Net (Approx.)	5.5 kg (12.1 lbs)	
		Gross (Approx.)	6.5 kg (14.3 lbs)	
G-20	Carton	Master Carton	No	
		Content	--- Sets	
		Material	--- / ---	
		Dimensions W x D x H (mm)	---	
		Description of Origin	---	
		Gift Box	Material	Single/Full Color
			W/Color Photo Label	No
			Dimensions W x D x H (mm)	520 x 430 x 174
		Drop Test	Description of Origin	Yes
			Natural Dropping At Height (cm)	1 Corner / 3 Edges / 6 Surfaces 80 cm
		Container Stuffing		1,530 Sets/40' container
G-21	Material	Cabinet Front	PS 94V2 or More / DECABROM	
		PCB	Non-Halogen Demand	No
			Eyelet Demand	No
G-22	Environment	Environmental standard requirement (by buyer)	Green procurement of TOSHIBA	
		Pb-free	Phase3 (Phase3A)	

GENERAL SPECIFICATIONS

G-1	Outline of the product		DVD-R/-RW/-RAM Video Recorder & VHS Player/Recorder
G-2	DVD System	Color System	NTSC
		Disc Format	DVD-R/-RW/-RAM
		Rec	DVD-R/-RW/-RAM, DVD-Video, CD-DA, CD-R/-RW, Video CD, SVCD
		Play	120 mm
		Disc Diameter	SW-9573
		Deck	1 hour
		Rec Time (Approx.) at 4.7GB Disc	2 hour
		XP	4 hour
		SP	6 hour
		LP	
		SLP	
		Search speed	Fwd 4 step
		Actual	2-45 times (DVD)
			4-40 times (CD)
		Actual	Rev 4 step
			2-45 times (DVD)
			4-40 times (CD)
		Slow speed	Fwd 1/8-1/2 times
		Actual	--
		Actual	Rev --
		Actual	--
G-3	VCR System	System	VHS Player / Recorder
		Video System	NTSC
		Hi-Fi STEREO	Yes
		NTSC PB(PAL60Hz)	No
		Deck	OVD-7S
		Heads Video Head	4Head
		FM Audio Head	2Head
		Audio / Control	Mono / Yes
		Erase (Full Track Erase)	Yes
		Erase (Normal Audio Track Erase)	No
		Tape Rec	-
		Speed PAL	SP/SLP
		NTSC	-
		Play PAL	SP/LP/SLP
		NTSC	-
G-4	Tuning System	Fast Forward / Rewind Time (Approx.) at 25oC	FF/REW: 1'48"/1'48"
		with Cassette	T-120
		Forward/Reverse	SP/LP/SLP = 3x,5x / 7x,9x / 9x, 15x
		Picture Search	-
		Frame Advance	Yes
		Slow Speed	1/10
		Broadcasting System	US System M
		Tuner and Receive CH	1Tuner
		System Destination	US (w/CABLE)
		CH Coverage	2-69, 4A, A-5~A-1, A~I, J~W, W+1~W+84
		Intermediate Frequency	45.75 MHz
		Picture (FP)	41.25 MHz
		Sound (FS)	4.50 MHz
		FP-FS	-
		Preset CH	-
		RF Converter Output	Yes
		Channel	3 or 4ch
		Level/Impedance	66dBu/75 ohm
		Sound Selector	No
		Stereo/Dual TV Sound	US-ST
		Tuner Sound Muting	Yes

GENERAL SPECIFICATIONS

G-5	Power	Power Source	AC	120V, 60Hz
			DC	-
		Power Consumption	Stand by (FIP Off)	29 W at 120V 60Hz
			Stand by Per Year	2.5 W at 120V 60Hz 3.5 W at 120V 60Hz -- W
G-6	Regulation	Protector	Power Fuse	Yes
			Safety Circuit	Yes
			IC Protector (Micro Fuse)	Yes
G-7	Temperature	Operation		5oC - 35oC
		Storage		-20oC - 60oC
G-8	Operating Humidity			Less than 80% RH
G-9	Signal	Video Signal	Output Level	1 V p-p / 75 ohm (DVD, VCR)
			S/N Ratio (Weighted)	65dB (DVD-Video) 50dB (VCR)
			Horizontal Resolution	500 Lines (DVD-Video) 230 Lines (VCR)
		RGB Signal	Output Level	--
		Audio Signal	Input Level Microphone	--
			Input Level Line	-8 dBm / 50k ohm (VCR, 0dBm=0.775Vrms)
			Output Level Line	-8 dBm / 1k ohm (VCR, 0dBm=0.775Vrms)
				-12dB / 1k ohm (DVD, -20dBfs 0dBfs=2.0Vrms)
			Digital Output Level	0.5 V p-p / 75 ohm (DVD)
			S/N Ratio at (Weighted)	90dB (DVD-Video), 42dB (VCR at SP)
			Harmonic Distortion (1KHz) Typical	0.02% (DVD-Video), 1.5% (VCR at SP)
			Frequency Response : DVD Mode at DVD	4 Hz - 22 kHz
			DVD Mode at VIDEO CD	4 Hz - 20 kHz
			DVD Mode at CD	4 Hz - 20 kHz
			VCR Mode at SP	100 Hz - 10 kHz
			VCR Mode at LP	--
			VCR Mode at SLP	100 Hz - 4 kHz
		Hi-Fi Audio Signal	Dynamic Range : More than	90dB
			Frequency Response	20Hz ~20kHz
			Wow And Flutter : Less than	0.01 %Wrms
			Channel Separation : More than	60 dB
			Harmonic Distortion : Less than	0.01

GENERAL SPECIFICATIONS

G-10	On Screen	Menu	Yes
	Display (DVD)	Menu Type	Character
		Timer Rec Set	Yes
		System Setup	Yes
		Language	Yes
		OSD Language	Yes
		DVD Menu	Yes
		Audio	Yes
		Subtitle	Yes
		Parental	Yes
		Password Lock/Unlock	Yes
		Rating Level	Yes
		Clock	Yes
		Clock Set	Yes
		Auto Clock	Yes
		Standard Time	Yes
		Daylight Saving Time	Yes
		Disc Setup	Yes
		New Disc Format	Yes
		Reformat as DVD VR	Yes
		Reformat as DVD Video	Yes
		Finalize	Yes
		Protect Disc	Yes
		Undo Finalize	Yes
		DVD-RAM Physical Format	Yes
		Other	Yes
		Dimmer	Yes
		Display/Call On/Off	Yes
		AV Setup	Yes
		AV Setup1	Yes
		TV Screen	Yes
		Still Mode	Yes
		No Noise Background	No
		Line1 Input	Yes
		Line2 Input	Yes
		AV Setup2	Yes
		Brightness	Yes
		Gamma	No
		DNR	No
		E.B.L. (Enhanced Black Level)	Yes
		Audio	Yes
		DRC (Dynamic Range Control)	Yes
		Virtual Surround	Yes
		(Spatializer(N-2-2))	Yes
		External Audio Input Selection	Yes
		SAP On/Off	Yes
		Rec Setup	Yes
		Initial Rec Mode	Yes
		Initial Rec To	Yes
		Auto Chapter	Yes
		Index Picture	Yes
		Just Record	No
		Black Level (REC)	Yes
		CH Setup	Yes
		TV/CABLE Select	Yes
		Auto CH Memory	Yes
		Add / Delete	Yes
		Other	Yes
		JPEG Interval	Yes

GENERAL SPECIFICATIONS

G-10	Title Menu (VR Mode)	Chapter		Yes	
		Add Chapter Mark		Yes	
		Combine Chapters		Yes	
		Play		Yes	
		Rename Title		Yes	
		Title Protect			No
		Thumb Nail Setting			No
		Delete Title		Yes	
		Title Combine			No
		Title Divide			No
		Edit Title		Yes	
		Rename Disc		Yes	
		Genre			No
		Play List			
		Play		Yes	
		Chapter			No
		Rename Title		Yes	
		Delete Title		Yes	
		Title Combine		Yes	
		Title Divide			No
		Edit Title		Yes	
	Title Menu (Video Mode)			Yes	
		Chapter			No
		Chapter Mark Add			No
		Chapter Mark Delete			No
		Play		Yes	
		Rename Title		Yes	
		Title Protect			No
		Thumb Nail Setting			No
		Delete Title			No
		Title Combine			No
		Title Divide			No
		Edit Title			No
		Rename Disc		Yes	
		Genre			No
		Play List			No
		Chapter			No
		Title Name			No
		Title Delete			No
		Title Combine			No
		Title Divide			No
		Cut			No
	Dubbing	DVD >>> VCR		Yes	
		VCR >>> DVD		Yes	
		Disc Information		Yes	
		Disc Type		Yes	
		Disc Remain Time		Yes	
		Open		Yes	
		Close			No
		No disc		Yes	
		Reading		Yes	
		Play		Yes	
		Play Bar (Time-Shift)		Yes	
		Pause/Still		Yes	
		Stop		Yes	
		Prohibit Mark		Yes	
		Step		Yes	
		Skip (>>)		Yes	
		Skip (<<)		Yes	
		Random		Yes	(CD, Video CD, SVCD)
		Repeat		Yes	
		Slow+		Yes	
		Slow-			No
		Search+		Yes	
		Search-		Yes	
		Time Search (Jump)		Yes	
		Resume		Yes	
		Title No.		Yes	
		Chapter No.		Yes	
		Track No.		Yes	
		Time		Yes	
		Subtitle No.		Yes	
		Angle No.		Yes	
		Vocal On/Off		Yes	
		Audio No.		Yes	
		Audio L/R		Yes	(Video CD, SVCD)
		Zoom		Yes	
		Marker No.			No
		Program Play Back		Yes	(CD, MP3, WMA, Video CD, SVCD)
		MP3 / WMA / JPEG	Folder Name	Yes	
			File Name	Yes	
			File No		No
			Time	Yes	
		Track No			No
	Progressive Scan Out On/Off		Yes		

GENERAL SPECIFICATIONS

	On Screen Display (VCR)	Menu	Yes
		Menu Type	Character
		Play/Stop/FF/ Rew/Rec/OT R (ITR)/T- Rec/Pause/Ej ect/Tape In (Symbol Mark)	Yes
		CH/AV (LINE)	Yes
		Clock	Yes
		Repeat	Yes
		Tape Counter	Yes
		Index	Yes
		Tape Speed	Yes
		Decoder	No
		Sound	Yes
		ATR / Manual Tracking	Yes
		Hi-Fi	Yes
		Zero Return	Yes
		OTPB	No
G-11	OSD Language	DVD OSD	English, French, Spanish
		VCR OSD	English, French, Spanish
G-12	Clock, Timer and Timer Back-up	Calendar	1990/1/1 ~ 2081/12/31
		Timer Events	12 Program / 1Month
		One Touch Recording Max Time	6 hours
		Timer Back-up (at Power Off Mode)	30min
G-13	Display	Display	Yes
		Display Type	6Digit Fluorescent Indicator
		Clock	Yes (12h)
		AM	No
		PM	Yes
		Counter	Yes (hour: min: sec)
		VCR	Yes (hour: min: sec)
		DVD	Yes (min: sec)
		CD	Yes (min: sec)
		TV/VIDEO	Yes
		CD	Yes
		DVD	Yes
		VR Mode	Yes
		Video Mode	No
		DVD-R	Yes
		DVD-RW	Yes
		DVD+R	No
		DVD+RW	No
		DVD-RAM	Yes
		Disc In	Yes
		Tape In	Yes
		T-Rec	Yes
		XP	Yes
		SP	Yes
		LP	Yes
		SLP	Yes
		EP	No
		VP	No
		Counter Remain	No
		Chapter	No
		Title	No
		Track No.	Yes
		Repeat (A-B/All)	No
		Play (VCR Side)	Yes
		Pause / Still / Step (VCR Side)	Yes
		Rec (VCR Side)	Yes
		Play (DVD Side)	Yes
		Pause / Still / Step (DVD Side)	Yes
		Rec (DVD Side)	Yes
		RF Output CH	Yes
		Eject	Yes
		Stop	No
		FF / Cue	No
		REW / Review	No
		OTR (ITR)	No
		Hi-Fi	No
		CH/AV	Yes
		BS	No
		CABLE	Yes
		Progressive Scan Out	Yes
		PBC (Play Back Control)	No

GENERAL SPECIFICATIONS

G-14	Remote Control	Unit	RC-KZ
		Glow in Dark Remocon	Yes
		LCD	No
		Format	TOSHIBA
		Remocon Format	TOSHIBA
		Custom Code	45-BC
		Power Source	3V
		Voltage (D.C)	UM-4 x 2 pcs
		UM size x pcs	
		Total Keys	51 Keys
		Keys	
		POWER	Yes
		OPEN/CLOSE/EJECT	Yes
		DVD	Yes
		VCR	Yes
		1	Yes
		2	Yes
		3	Yes
		4	Yes
		5	Yes
		6	Yes
		7	Yes
		8	Yes
		9	Yes
		0	Yes
		0 / 10	No
		11	No
		12	No
		T-REC	Yes
		INPUT SELECT	Yes
		CANCEL	Yes
		RETURN	Yes
		DISPLAY	Yes
		TOP MENU / TITLE LIST	Yes
		CH+	Yes
		CH-	Yes
		UP	Yes
		DOWN	Yes
		LEFT / TRACKING-	Yes
		RIGHT / TRACKING+	Yes
		ENTER	Yes
		DVD MENU	Yes
		SETUP	Yes
		STOP	Yes
		PLAY	Yes
		PAUSE / STILL / STEP	Yes
		<<SKIP / INDEX-	Yes
		<<SEARCH / REW	Yes
		SEARCH>> / F.FWD	Yes
		SKIP>> / INDEX+	Yes
		ONE TOUCH REPEAT	Yes
		CM SKIP	Yes
		<<SLOW	No
		SLOW>>	Yes
		REC / OTR	Yes
		REC MODE / SPEED	Yes
		DUBBING	Yes
		AUDIO / AUDIO SELECT	Yes
		MARKER	No
		ZOOM / ZERO RETURN	Yes
		REPEAT A-B	Yes
		ANGLE / COUNTER RESET	Yes
		SUBTITLE / ATR	Yes
		PLAY MODE / REPEAT	Yes
		CLOCK / COUNTER	Yes
		CHAPTER MARK	No
		NAVI MARK	No
		TV / VIDEO	Yes
		PROGRESSIVE	Yes

GENERAL SPECIFICATIONS

G-15	Features (DVD & VCR)	Auto Power Off		No
		CM Skip (30sec x 6 Times)	Yes	
		Copy (Tape to Disc, Disc to Tape)	Yes (By Conditioning)	
		VIDEO PLUS+ (SHOWVIEW, G-CODE)		No
		Auto CH Memory	Yes	
		Area Code		No
		Just Clock		No
		Auto Clock Set	Yes	
		CABLE	Yes	
		MTS (SAP)	Yes	
		Energy Star		No
		Analog BS		No
		Power On Memory		No
	Features (DVD)	Echo		No
		Mic Mixing		No
		DV Rec		No
		Time-Shift Playback	Yes	
		Video CD Playback	Yes	
		SVCD Playback	Yes	
		MP3 Playback	Yes	
		WMA Playback	Yes	
		JPEG Playback	Yes	
		Progressive Scan Out	Yes	
		Digital Out (Dolby Digital)	Yes	
		(MPEG)	Yes	
		(PCM)	Yes	
		(DTS)	Yes	
		Down Mix Out (Dolby Digital)	Yes	
		(DTS)		No
		Spatializer (N-2-2)	Yes	
		Qsound		No
		Screen Saver		No
		Auto Stop		No
		Tray Lock	Yes	
		One Touch Repeat	Yes	
		Audio DAC	192kHz / 24bit	
	Features (VCR)	Auto Head Cleaning		No
		Auto Power Off		No
		Forward/Reverse Picture Search	Yes	
		Index Search	Yes	
		SQPB	Yes	
		Rec End Search		No
		CS Easy		No
G-16	Accessories	Owner's Manual	Language	English/French
			w/Guarantee Card	Yes
		Remote Control Unit		Yes
		Battery		Yes
			UM size x pcs	UM-4 x 2 pcs
			OEM Brand	--
		Blank DVD-RW DISC (4.7GB)		No
		Blank DVD-R DISC (4.7GB)		No
		Blank DVD-RAM Disc (4.7GB)		No
		Guarantee Card		No
		Registration Card		No
		Warning Sheet		No
		Service Station List		No
		Important Tag		No
		AC Plug Adapter		No
		Quick Setup Sheet		No
		Information Sheet	Yes	
		AC Cord		No
		AV Cord	Yes (1.2m)	
		75 Ohm Coaxial Cable	Yes (0.9m)	
		S-Video Cable		No
		21pin cable		No
		800 No Sticker		No
		Toll Free Insert Sheet		No
		Safety Tip		No
		Netflix Card		No
		PVC Warning Sheet		No

GENERAL SPECIFICATIONS

G-17	Interface	Switch	Front	Power	Yes	
				Play	Yes	
				Eject (VCR)	Yes	
				Stop	Yes	
				Rec / OTR	Yes	
				Open / Close (DVD)	Yes	
				CH +	Yes	
				CH -	Yes	
				FF / Search(>>)	Yes	
				Rew / Search(<<)	Yes	
				Still / Pause	No	
				Shuttle (Search / REV / FWD)	No	
				Dubbing	Yes	
				DVD	Yes	
				VCR	Yes	
				Main Power SW	No	
			Rear	S-Video / Component Video Selector	No	
				RF Out (Slide SW)	No	
				Main Power SW	No	
				Phones Volume	No	
		Volume		Mic Volume	No	
				Echo Volume	No	
		Terminals	Front	Video In	RCA x1(Yellow) S-Video x 1 (DVD Rec Only) RCA x 2 (Stereo, White/Red)	
				Audio In		
				DV In (IEEE1394)	No	
				Rear	Video Output	RCA x1(Yellow) S-Video (S2) x1 (DVD,VCR) Component x1 (RCA 3pin, DVD Signal Only)
			Audio Output		RCA x 2 (Stereo, White/Red) RCA x 2 (DVD Signal Only, Stereo, White/Red) Coaxial x 1 (Digital Audio, DVD Signal Only)	
			Optical Out		Yes (Digital Audio, DVD Signal Only)	
			Video In		RCA x1(Yellow) S-Video x 1 (DVD Rec Only)	
			Audio In		RCA x 2 (Stereo, White/Red)	
			Detect Input / Output		No	
			Bit Stream Input / Output		No	
			RF Input / Output	Yes		
			BS Input / Output	No		
			Euro Scart	No		
			AC Inlet	No		
			Indicator	LED	Power	No
					Rec	No
					T-Rec	No
					TV/VCR	No
					DVD	Yes (Blue)
					VCR	Yes (Green)
					Surround	No
		Level Meter			No	
		G-18	Set Size	Approx. W x D x H (mm)		430 x 318.5 x 89.5
		G-19	Weight	Net (Approx.)		5.5 kg (12.1 lbs)
				Gross (Approx.)		6.5 kg (14.3 lbs)
		G-20	Carton	Master Carton		No
				Content		--- Sets
				Material		--- / ---
				Dimensions W x D x H (mm)		---
Description of Origin				---		
Gift Box	Material			Single/Full Color		
	W/Color Photo Label			No		
	Dimensions W x D x H (mm)			520 x 430 x 174		
	Description of Origin			Yes		
Drop Test	Natural Dropping At			1 Corner / 3 Edges / 6 Surfaces		
	Height (cm)			80 cm		
Container Stuffing				1,530 Sets/40' container		
G-21	Material	Cabinet Front		PS 94V2 or More / DECABROM		
		PCB	Non-Halogen Demand		No	
			Eyelet Demand		No	
G-22	Environment	Environmental standard requirement (by buyer)		Green procurement of TOSHIBA		
		Pb-free		Phase3 (Phase3A)		

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: TOP CABINET AND FRONT CABINET (Refer to Fig. 1-1)

1. Remove the 5 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Disconnect the following connectors: **(CP601, CP652)**.
4. Unlock the 7 supports ②.
5. Remove the Front Cabinet in the direction of arrow (B).

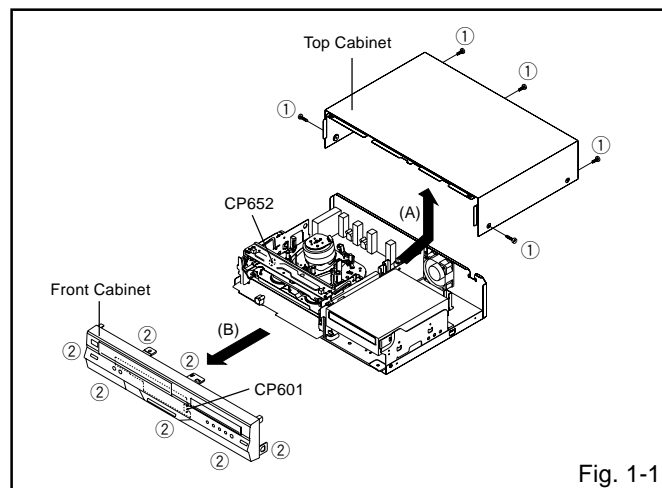


Fig. 1-1

1-2: OPERATION 1/2 PCB AND DISPLAY PCB (Refer to Fig. 1-2)

1. Remove the 7 screws ①.
2. Remove the Deck Holder (L), PCB Holder and Operation 1 PCB in the direction of arrow (A).
3. Remove the 4 screws ②.
4. Remove the Display PCB in the direction of arrow (B).
5. Remove the 4 screws ③.
6. Remove the Operation 2 PCB in the direction of arrow (C).

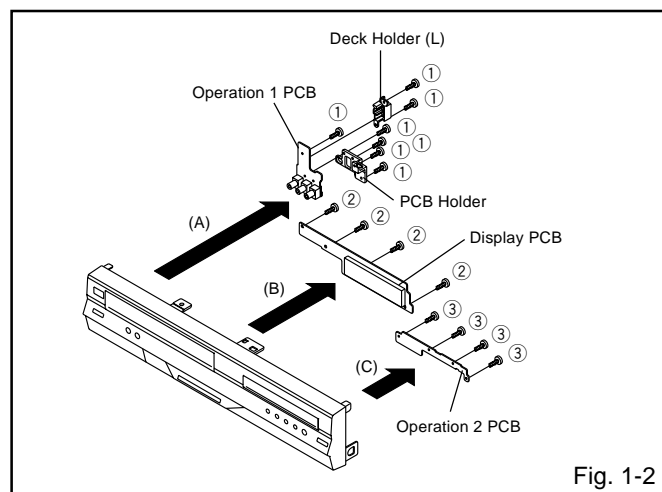


Fig. 1-2

1-3: FLAP (Refer to Fig. 1-3)

1. Open Flap to 90° and flex in direction of arrow (A), at the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).

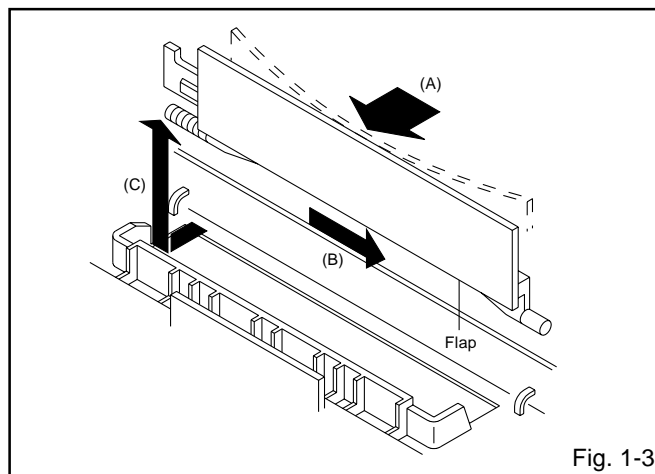


Fig. 1-3

1-4: DECK CD AND DVD/HD MPEG PCB (Refer to Fig. 1-4)

1. Remove the 2 screws ①.
2. Remove the Deck Shield in the direction of arrow (A).
3. Remove the 6 screws ②.
4. Disconnect the following connectors: **(CP504, CP1701, CP8301, CP8302, CP8303)**.
5. Remove the Deck CD Block in the direction of arrow (B).
6. Remove the 4 screws ③.
7. Remove the MPEG Shield in the direction of arrow (C).
8. Disconnect the following connector: **(CP4006)**.
9. Remove the DVD/HD MPEG PCB in the direction of arrow (D).
10. Remove the 2 screws ④.
11. Remove the DVD Angle (L) in the direction of arrow (E).
12. Remove the 2 screws ⑤.
13. Remove the DVD Angle (R) in the direction of arrow (F).

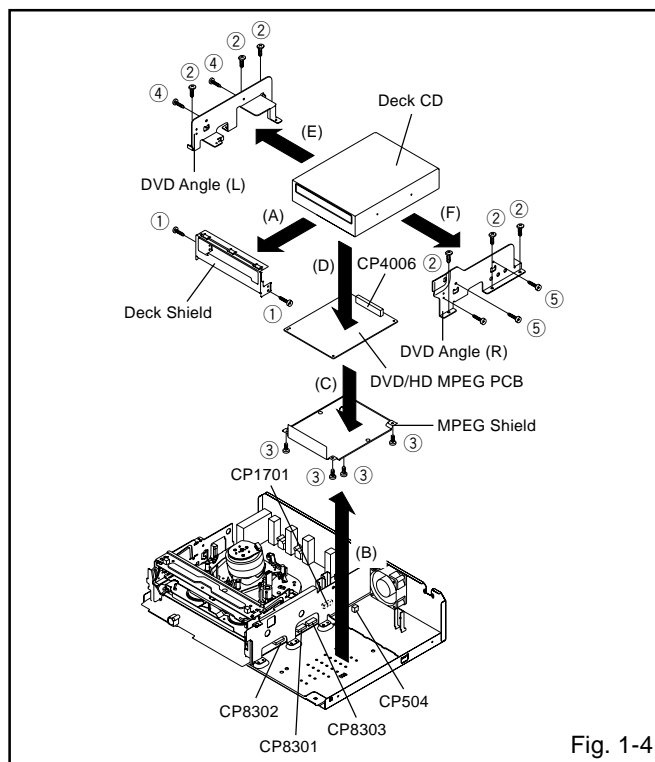


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: POWER PCB (Refer to Fig. 1-5)

1. Remove the 2 screws ①.
2. Disconnect the following connector: **(CP506)**.
3. Remove the Fan Motor in the direction of arrow (A).
4. Remove the 3 screws ②.
5. Disconnect the following connector: **(CP1702)**.
6. Remove the Power PCB in the direction of arrow (B).

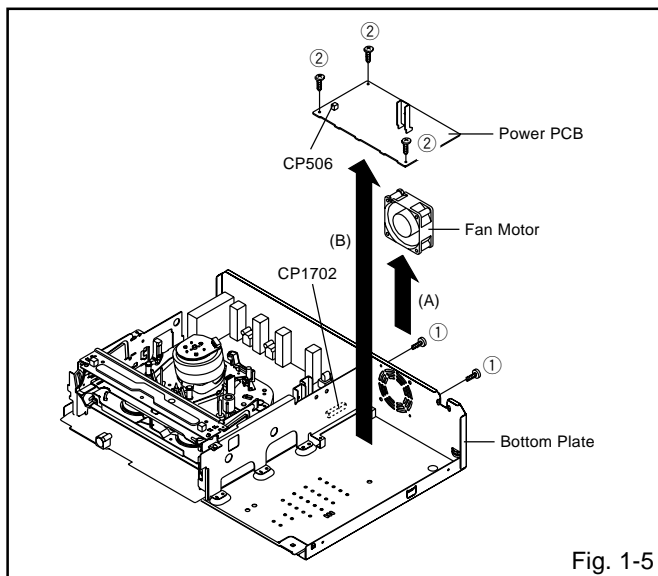


Fig. 1-5

1-6: VCR DECK (Refer to Fig. 1-6)

NOTE

Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Unlock the 2 supports ① and remove the Top Holder.
2. Remove the screw ②.
3. Remove the FE Head.
4. Move the Cassette Holder Ass'y to the back side.
5. Remove the 3 screws ③.
6. Disconnect the following connectors: **(CP101, CP102, CP3001)**.
7. Remove the AC Head Cover and VCR Deck in the direction of arrow.

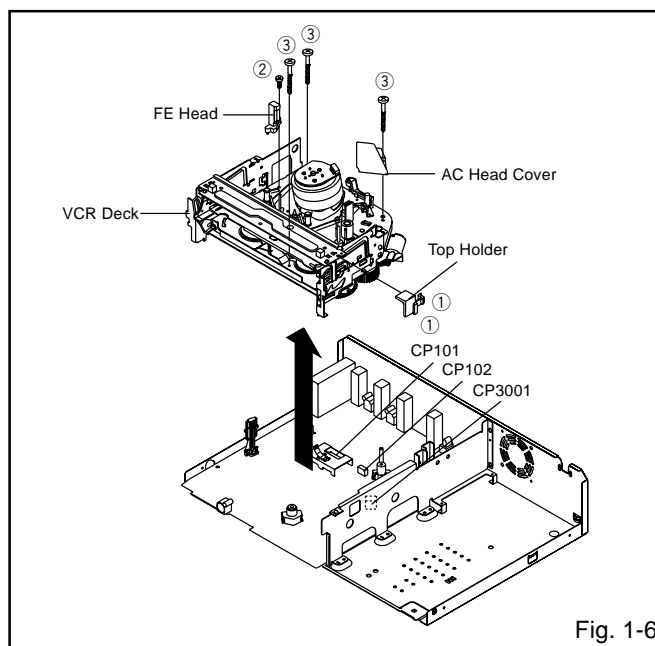


Fig. 1-6

1-7: VCR PCB (Refer to Fig. 1-7)

1. Remove the screw ①.
2. Remove the screw ②.
3. Remove the 7 screws ③.
4. Remove the VCR PCB in the direction of arrow.

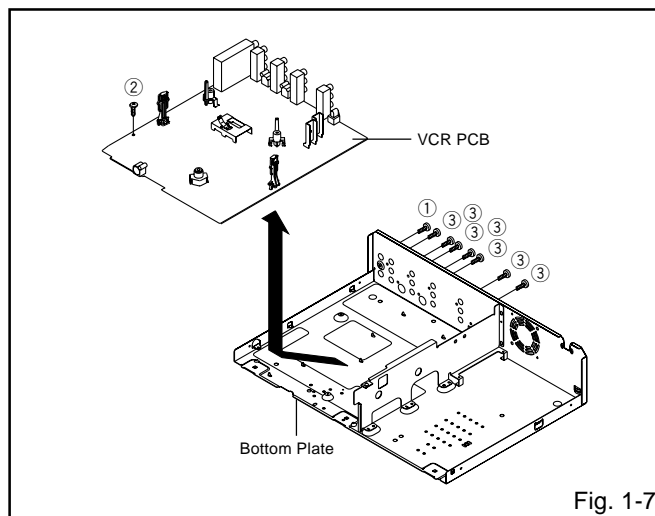


Fig. 1-7

DISASSEMBLY INSTRUCTIONS

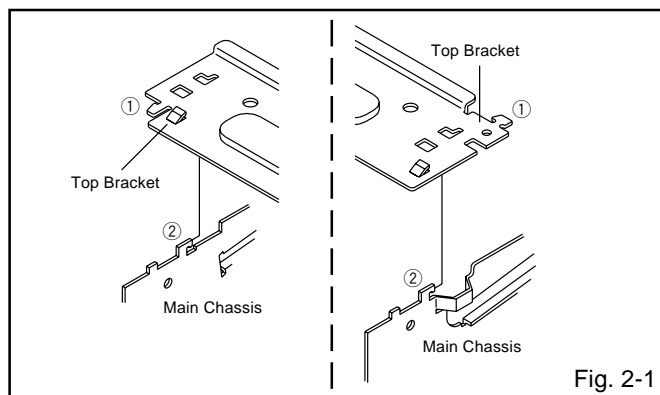
2. REMOVAL OF VCR DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

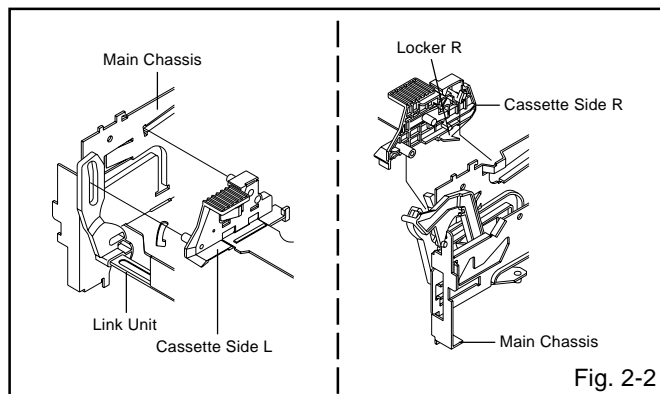
NOTE

1. After installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.



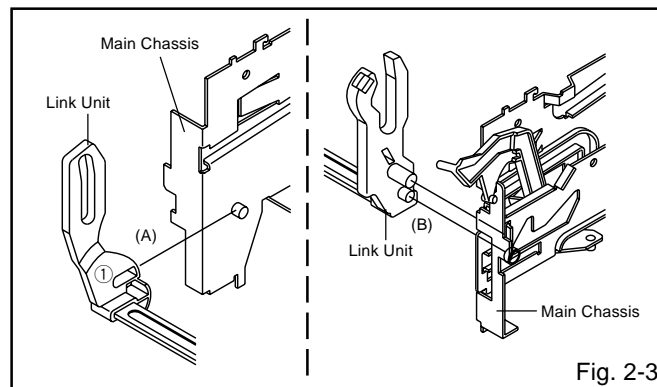
2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.



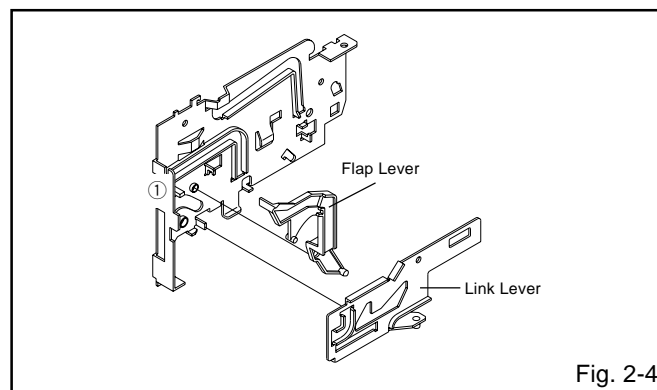
2-3: LINK UNIT (Refer to Fig. 2-3)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.



2-4: LINK LEVER/FLAP LEVER (Refer to Fig. 2-4)

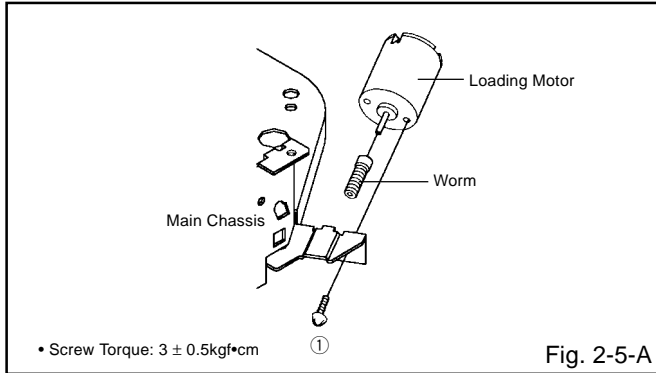
1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.



DISASSEMBLY INSTRUCTIONS

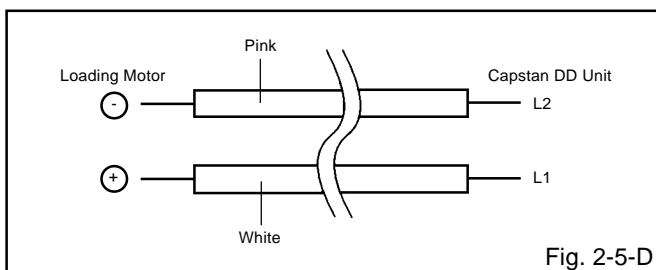
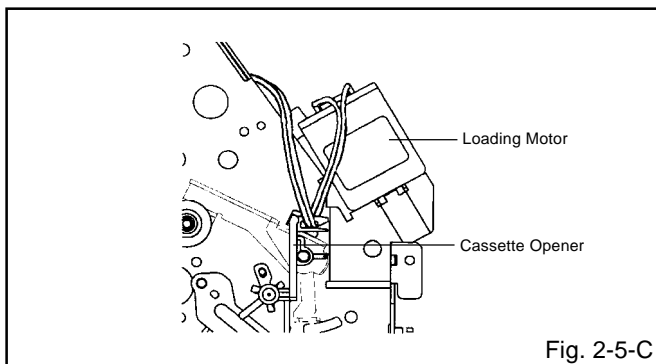
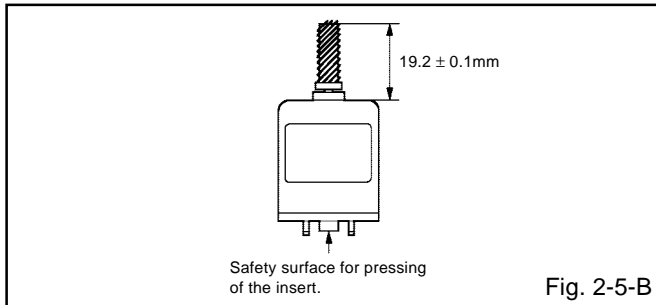
2-5: LOADING MOTOR/WORM (Refer to Fig. 2-5-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.



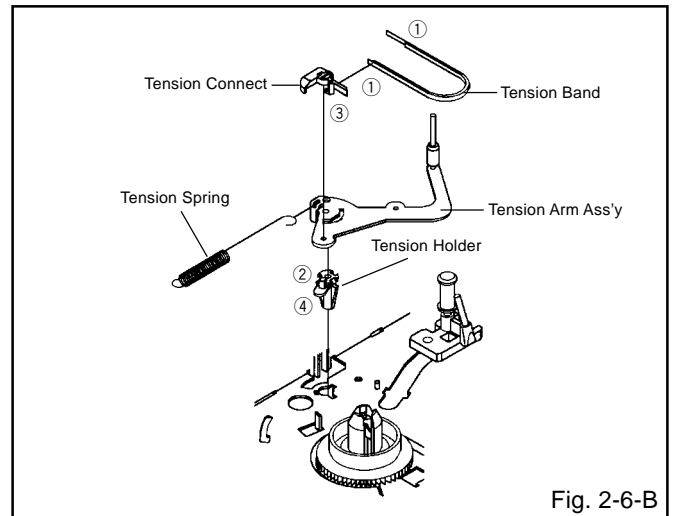
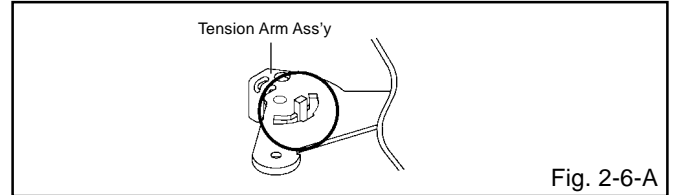
NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-5-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-5-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-5-D.



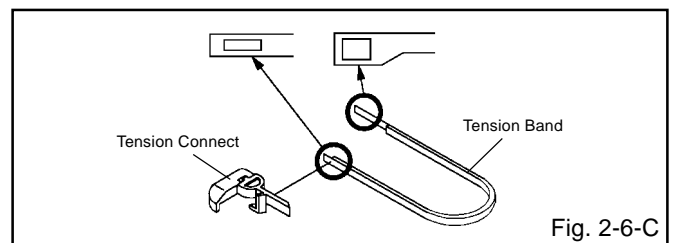
2-6: TENSION ASS'Y (Refer to Fig. 2-6-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-6-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

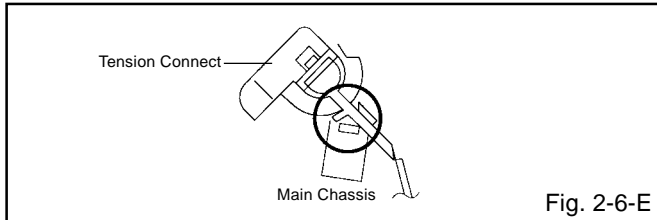
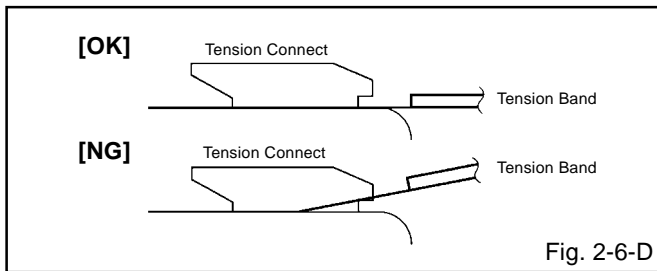


NOTE

1. In case of the Tension Band installation, note the direction of the installation. (Refer to Fig. 2-6-C)
2. In case of the Tension Band installation, install correctly as Fig. 2-6-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-6-E.

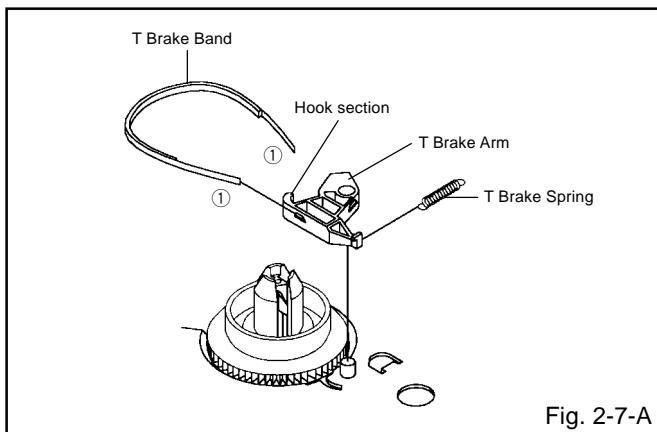


DISASSEMBLY INSTRUCTIONS



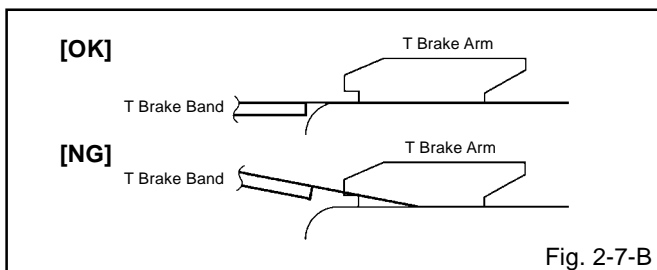
2-7: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-7-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.



NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-7-B.

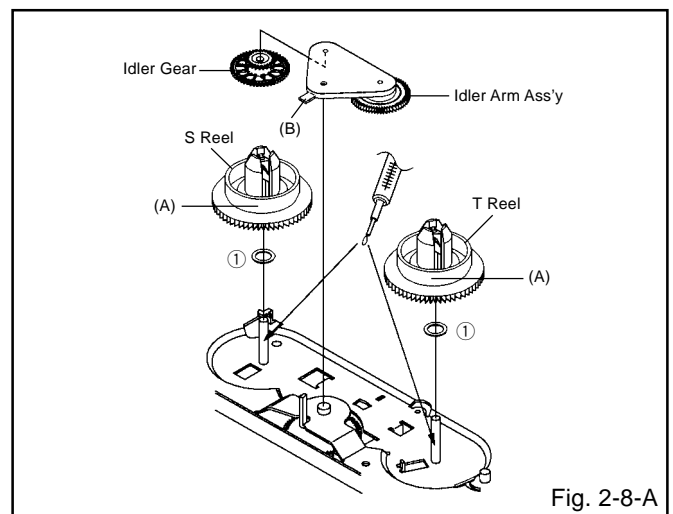


2-8: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-8-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

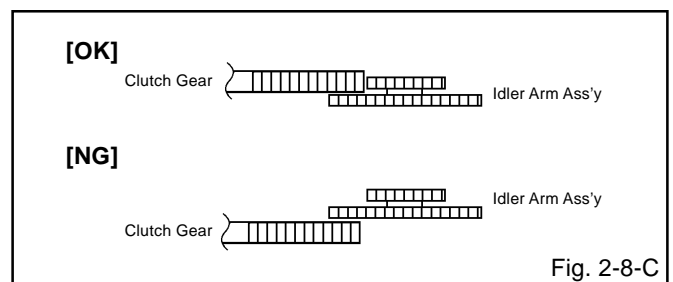
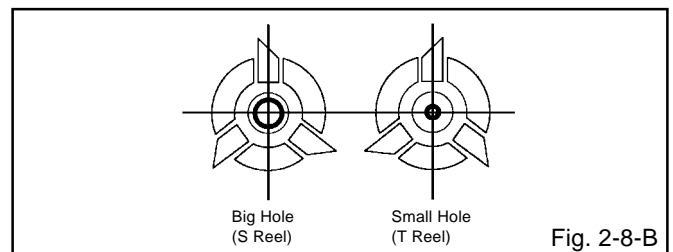
NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch section "A" of S Reel and T Reel. (Use gloves.) (Refer to Fig. 2-8-A) Touching may leave stains on section "A".
5. When you install the reel, clean the shaft and grease it. (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)



NOTE

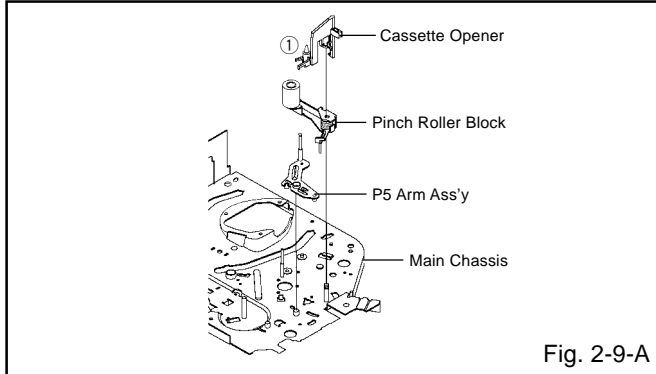
1. In case of the S Reel and T Reel installation, check if the correct parts are installed. (Refer to Fig. 2-8-B)
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-8-C. And also set it so that the section "B" of Fig. 2-8-A is placed under the Main Chassis tab.



DISASSEMBLY INSTRUCTIONS

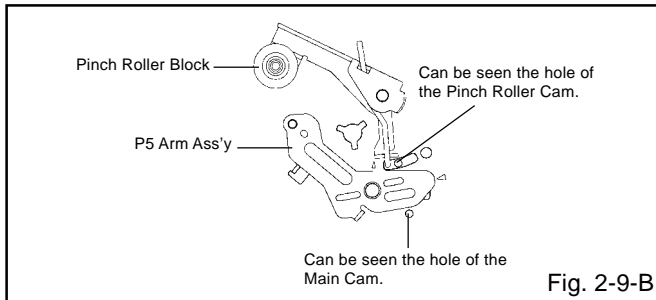
2-9: CASSETTE OPENER/PINCH ROLLER BLOCK/P5 ARM ASS'Y (Refer to Fig. 2-9-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.



NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-9-B.

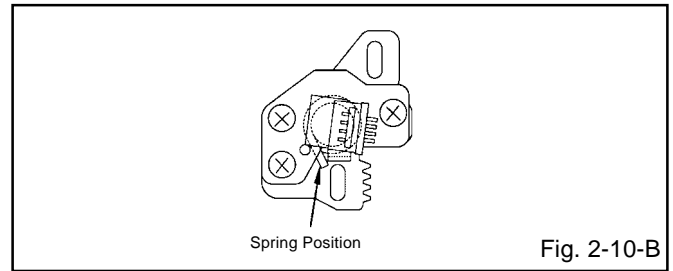
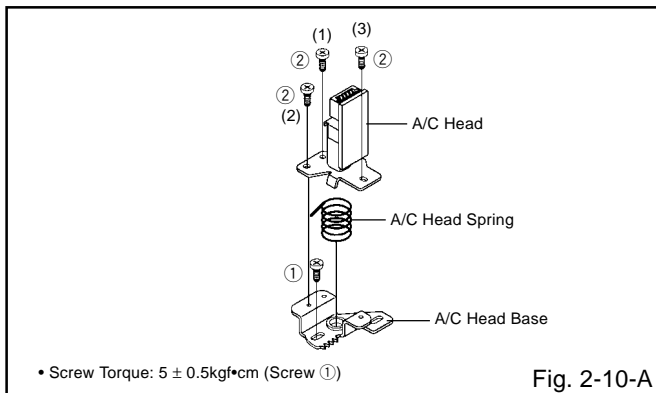


2-10: A/C HEAD (Refer to Fig. 2-10-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

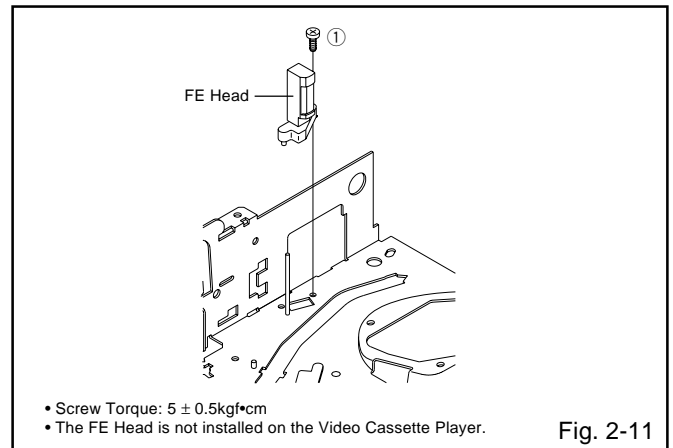
NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-10-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



2-11: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-11)

1. Remove the screw ①.
2. Remove the FE Head.

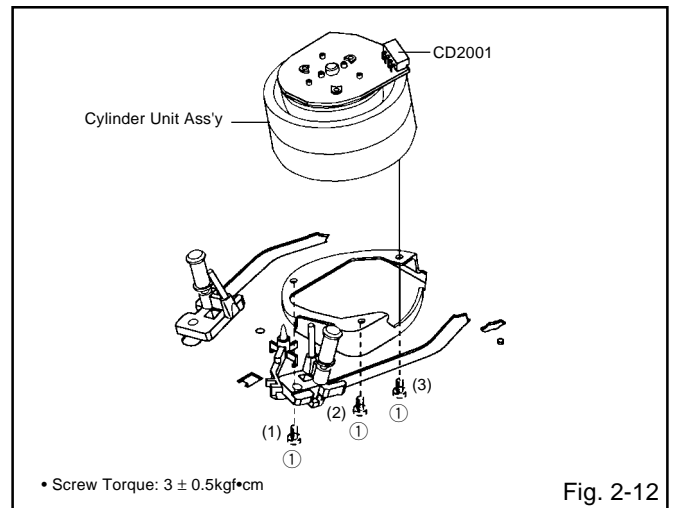


2-12: CYLINDER UNIT ASS'Y (Refer to Fig. 2-12)

1. Disconnect the following connector: (CD2001).
2. Remove the 3 screws ①.
3. Remove the Cylinder Unit Ass'y.

NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



DISASSEMBLY INSTRUCTIONS

2-13: CAPSTAN DD UNIT (Refer to Fig. 2-13-A)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.

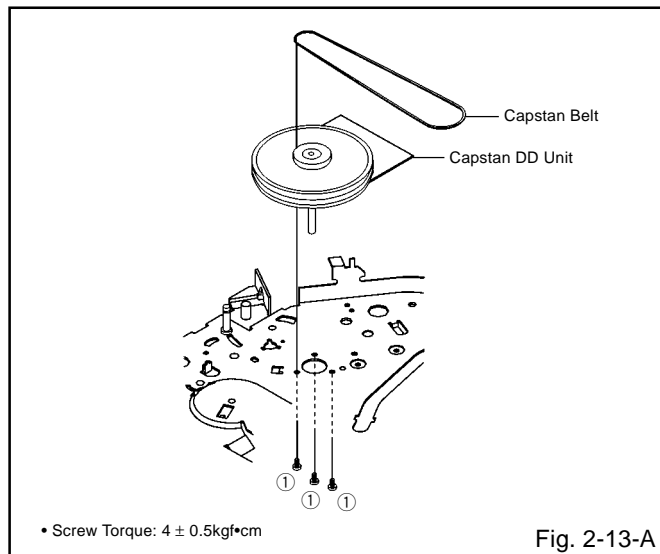


Fig. 2-13-A

NOTE

1. In case of the Capstan DD Unit installation, apply the silicon bond (TSE3843-W) on the position Fig. 2-13-B correctly. (If no silicon bond applied, abnormal noise will be heard on the deck operation.)
(Refer to Fig. 2-13-B, C)

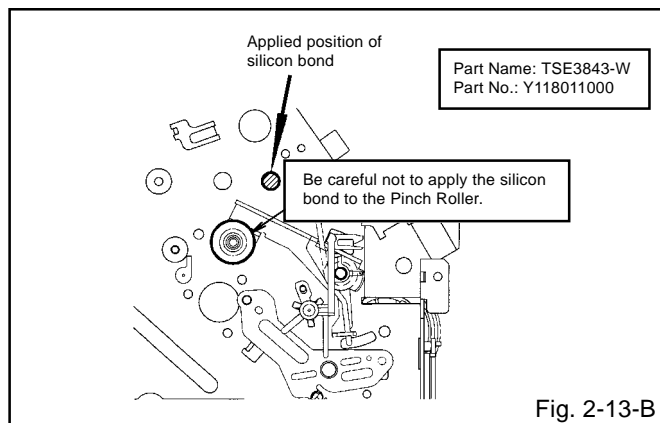


Fig. 2-13-B

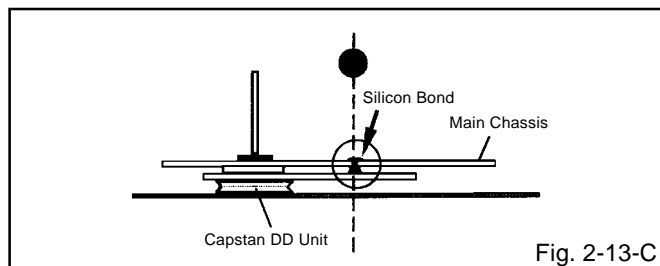


Fig. 2-13-C

2-14: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-14-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.

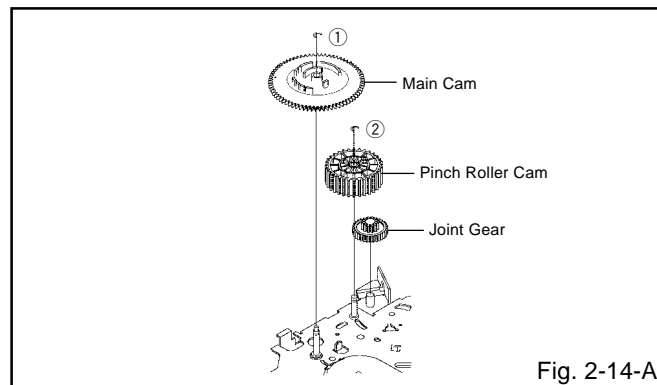


Fig. 2-14-A

NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as shown in the circled section of Fig. 2-14-B so that the markers meet. (Refer to Fig. 2-14-B) And also can be seen the Main Chassis hole through the Main Cam maker hole.

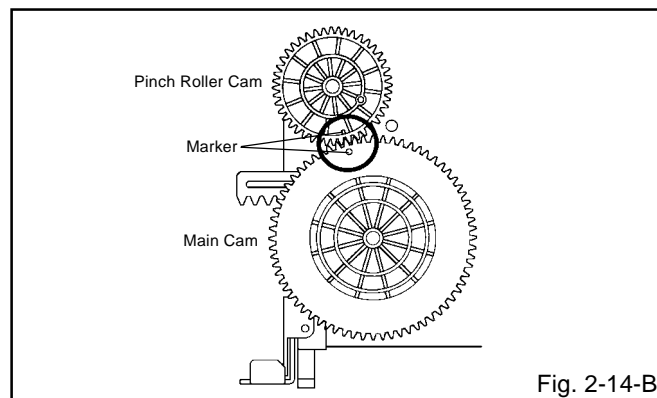


Fig. 2-14-B

2-15: LOADING GEAR S/T UNIT (Refer to Fig. 2-15-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.

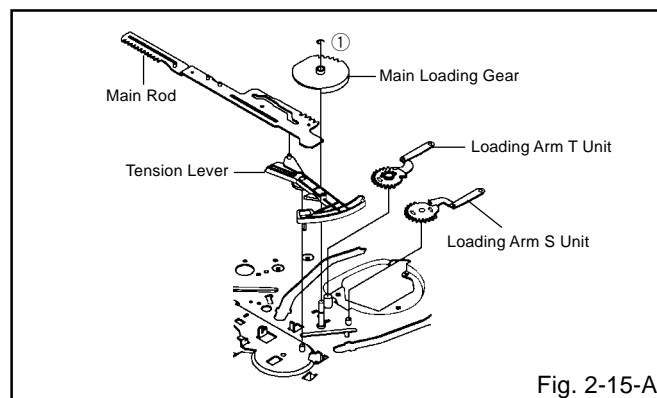
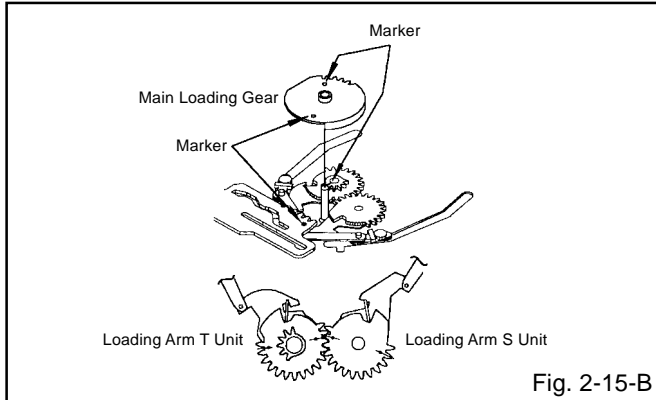


Fig. 2-15-A

DISASSEMBLY INSTRUCTIONS

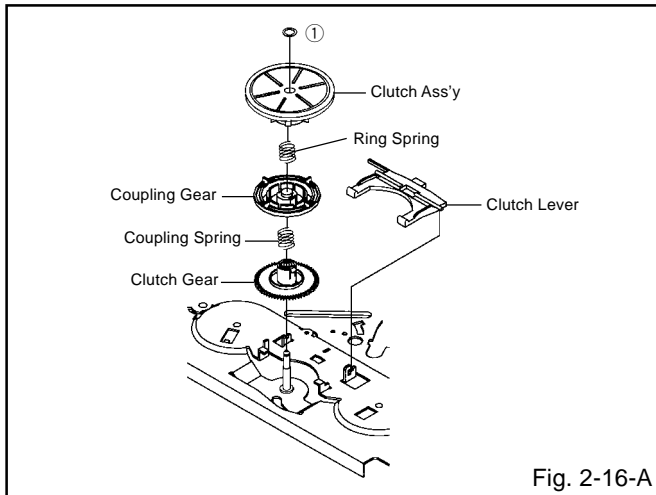
NOTE

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. (Refer to Fig. 2-15-B)



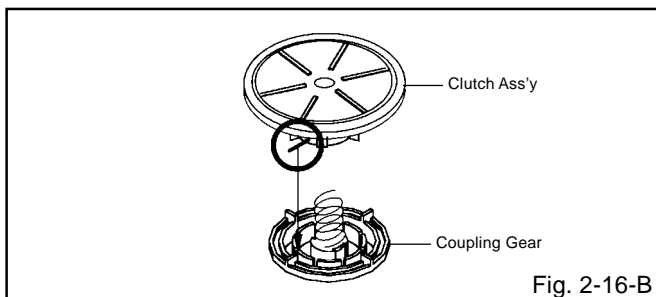
2-16: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/CLUTCH GEAR (Refer to Fig. 2-16-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.



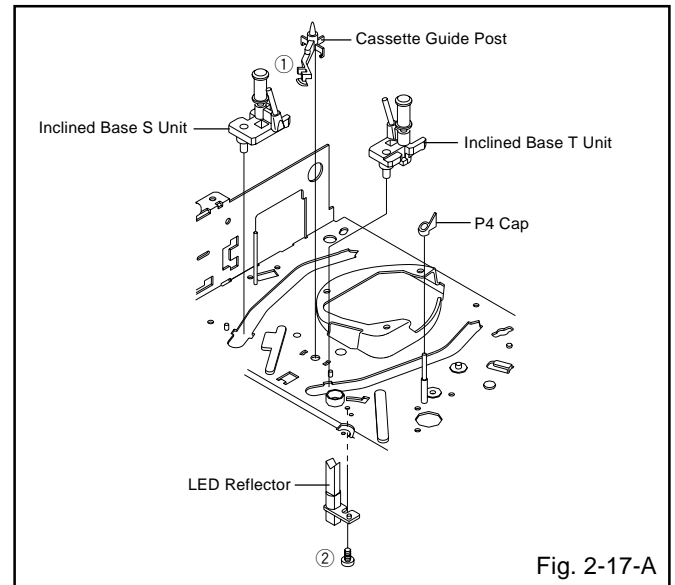
NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. (Refer to Fig. 2-16-B)



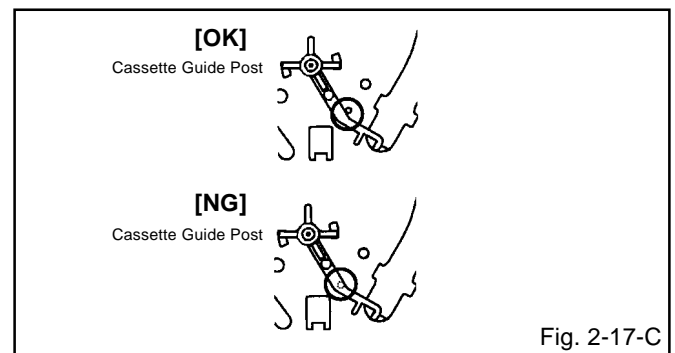
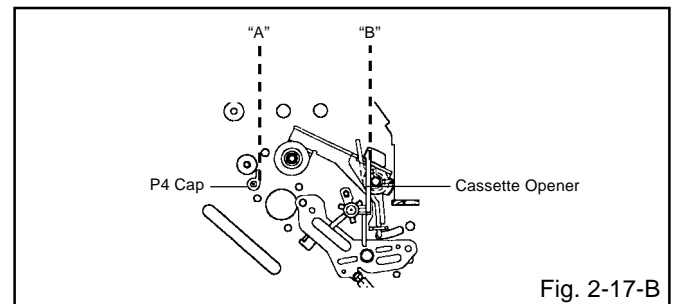
2-17: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (Refer to Fig. 2-17-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.



NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-17-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-17-C.



DISASSEMBLY INSTRUCTIONS

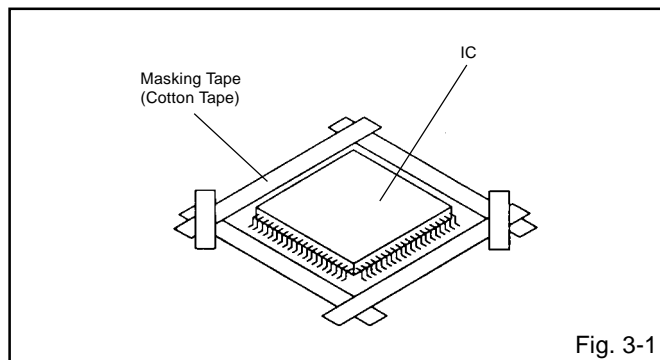
3. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 3-1.)

NOTE

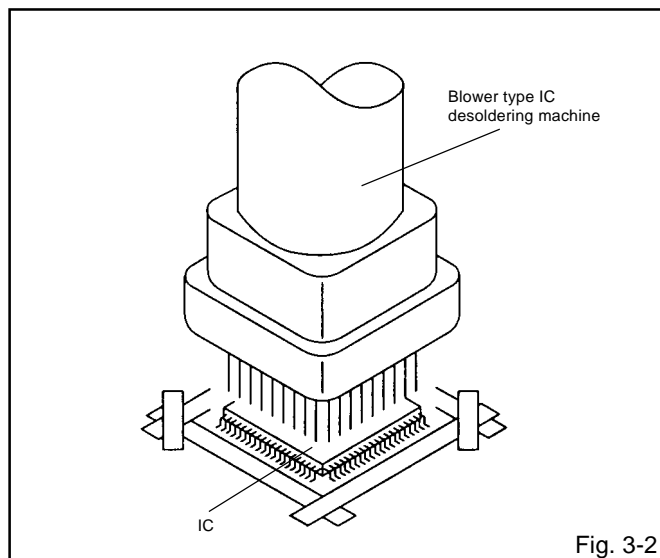
Masking is carried out on all the parts located within 10 mm distance from IC leads.



2. Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 3-2.)

NOTE

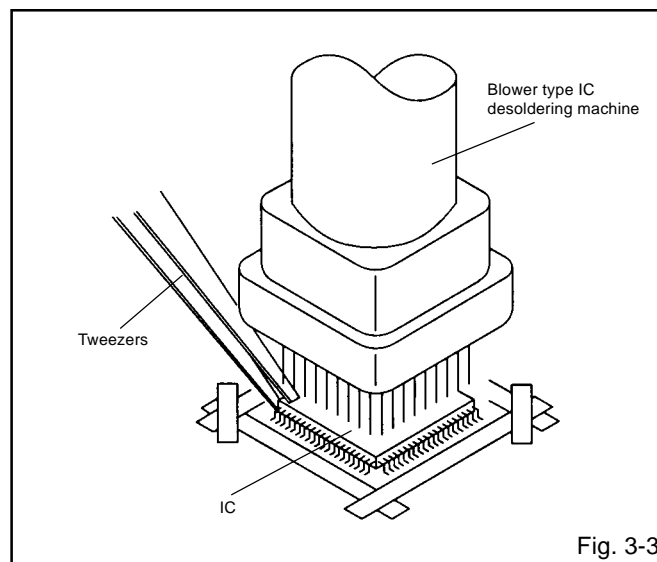
Do not rotate or move the IC back and forth, until IC can move back and forth easily after desoldering the leads completely.



3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. (Refer to Fig. 3-3.)

NOTE

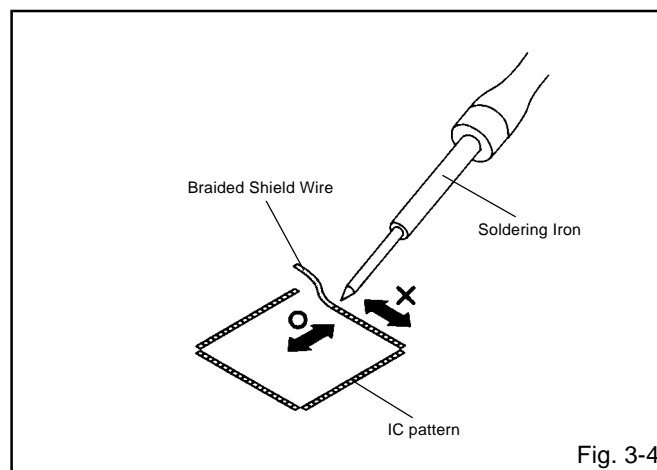
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. (Refer to Fig. 3-4.)

NOTE

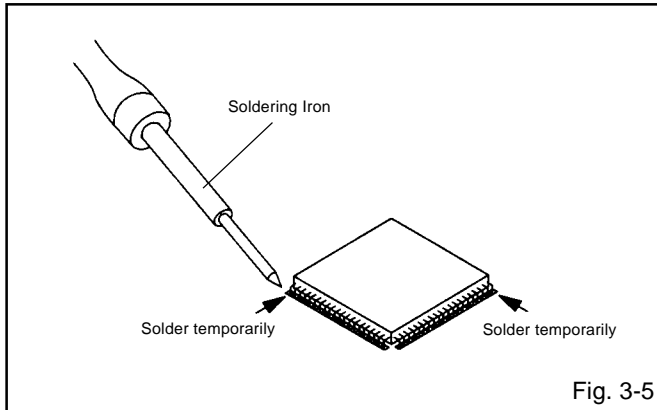
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



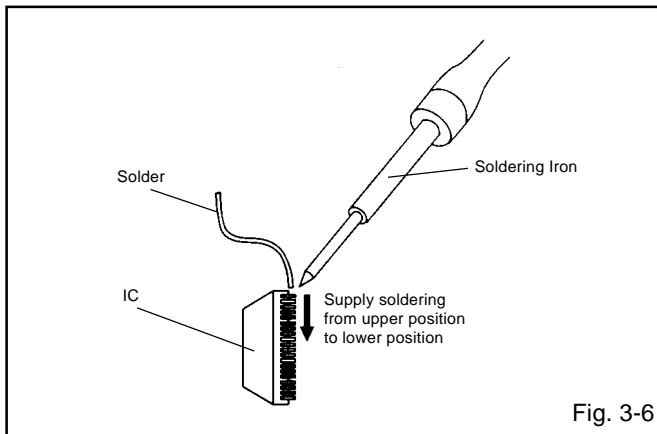
DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 3-5.)**



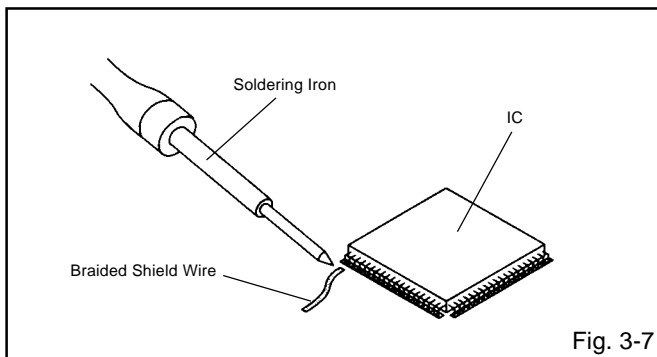
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 3-6.)**



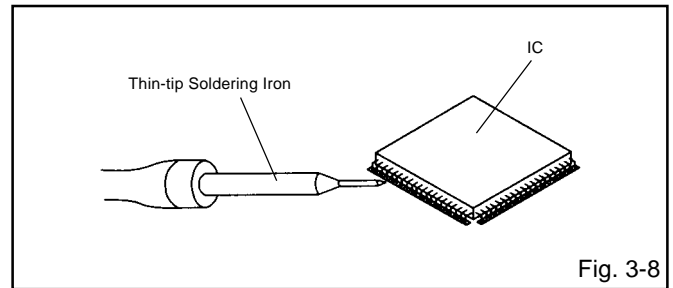
3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 3-7.)**

NOTE

Do not absorb the solder to excess.



4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 3-8.)**



5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass. Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	A/C	: Audio/Control	H.SW	: Head Switch	
	ACC	: Automatic Color Control	Hz	: Hertz	
	AE	: Audio Erase	I	IC	: Integrated Circuit
	AFC	: Automatic Frequency Control		IF	: Intermediate Frequency
	AFT	: Automatic Fine Tuning		IND	: Indicator
	AFT DET	: Automatic Fine Tuning Detect		INV	: Inverter
	AGC	: Automatic Gain Control	K	KIL	: Killer
	AMP	: Amplifier	L	L	: Left
	ANT	: Antenna		LED	: Light Emitting Diode
	A.PB	: Audio Playback		LIMIT AMP	: Limiter Amplifier
	APC	: Automatic Phase Control		LM, LDM	: Loading Motor
	ASS'Y	: Assembly		LP	: Long Play
	AT	: All Time		L.P.F	: Low Pass Filter
	AUTO	: Automatic		LUMI.	: Luminance
	A/V	: Audio/Video	M	M	: Motor
B	BGP	: Burst Gate Pulse		MAX	: Maximum
	BOT	: Beginning of Tape		MINI	: Minimum
	BPF	: Bandpass Filter		MIX	: Mixer, mixing
	BRAKE SOL	: Brake Solenoid		MM	: Monostable Multivibrator
	BUFF	: Buffer		MOD	: Modulator, Modulation
	B/W	: Black and White		MPX	: Multiplexer, Multiplex
C	C	: Capacitance, Collector		MS SW	: Mecha State Switch
	CASE	: Cassette	N	NC	: Non Connection
	CAP	: Capstan		NR	: Noise Reduction
	CARR	: Carrier	O	OSC	: Oscillator
	CH	: Channel		OPE	: Operation
	CLK	: Clock	P	PB	: Playback
	CLOCK (SY-SE)	: Clock (Syscon to Servo)		PB CTL	: Playback Control
	COMB	: Combination, Comb Filter		PB-C	: Playback-Chrominance
	CONV	: Converter		PB-Y	: Playback-Luminance
	CPM	: Capstan Motor		PCB	: Printed Circuit Board
	CTL	: Control		P. CON	: Power Control
	CYL	: Cylinder		PD	: Phase Detector
	CYL-M	: Cylinder-Motor		PG	: Pulse Generator
	CYL SENS	: Cylinder-Sensor		P-P	: Peak-to Peak
D	DATA (SY-CE)	: Data (Syscon to Servo)	R	R	: Right
	dB	: Decibel		REC	: Recording
	DC	: Direct Current		REC-C	: Recording-Chrominance
	DD Unit	: Direct Drive Motor Unit		REC-Y	: Recording-Luminance
	DEMOD	: Demodulator		REEL BRK	: Reel Brake
	DET	: Detector		REEL S	: Reel Sensor
	DEV	: Deviation		REF	: Reference
E	E	: Emitter		REG	: Regulated, Regulator
	EF	: Emitter Follower		REW	: Rewind
	EMPH	: Emphasis		REV, RVS	: Reverse
	ENC	: Encoder		RF	: Radio Frequency
	ENV	: Envelope		RMC	: Remote Control
	EOT	: End of Tape		RY	: Relay
	EQ	: Equalizer	S	S. CLK	: Serial Clock
	EXT	: External		S. COM	: Sensor Common
F	F	: Fuse		S. DATA	: Serial Data
	FBC	: Feed Back Clamp		SEG	: Segment
	FE	: Full Erase		SEL	: Select, Selector
	FF	: Fast Forward, Flipflop		SENS	: Sensor
	FG	: Frequency Generator		SER	: Search Mode
	FL SW	: Front Loading Switch		SI	: Serial Input
	FM	: Frequency Modulation		SIF	: Sound Intermediate Frequency
	FSC	: Frequency Sub Carrier		SO	: Serial Output
	FWD	: Forward		SOL	: Solenoid
G	GEN	: Generator		SP	: Standard Play
	GND	: Ground		STB	: Serial Strobe
H	H.P.F	: High Pass Filter		SW	: Switch

KEY TO ABBREVIATIONS

S	SYNC	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	TR	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	UNREG	:	Unregulated
V	V	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	X'TAL	:	Crystal
Y	Y/C	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit or on the main unit and on the remote control for more than a standard time in the appropriate condition. (See below chart.)

In case of the main unit and remote control, press the remote control buttons first, then press the main unit buttons.

Set Condition	Set Key	Set Key	Standard Time	Operations
VCR mode	CH UP	FF	2 sec.	PLAY/REC total hours are displayed on the TV Monitor. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC (VCR side). Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
DVD mode	CH UP	PLAY	2 sec.	Initialization of the factory. NOTE: If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, and PLAY/REC total hours.
VCR mode (Playback)	CH UP	CH DOWN	2 sec.	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VCR mode	CH UP	REC	2 sec.	The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape. Refer to the "PREPARATION FOR SERVICING"
VCR mode (Playback)	VCR/DVD	REC	2 sec.	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT".
VCR mode (Playback)	CH UP	STOP	2 sec.	Display of the DVD AUDIO LEVEL and SEPARATION Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT".
Power On	CH DOWN	VCR/DVD	2 sec.	Information screen displayed on the TV Monitor. Refer to the "WHEN REPLACING NEW DVD LOADER".
Power Off	CH DOWN	POWER	2 sec.	VCR operation mode at no connection of DVD. Refer to the "PREPARATION FOR SERVICING" NOTE: Although the DVD is connected, the DVD mode cannot be selected.

Set Condition	Set Key	Remocon Key	Standard Time	Operations
DVD mode (STOP)	STOP	0	2 sec.	Tray cannot be opened. Refer to the "TRAY LOCK". NOTE: No indications on the screen when the Tray Lock is setting. The function will only work without the setting of DVD disc at DVD mode.
DVD mode (No disc)	STOP	2	2 sec.	DVD Write mode. Refer to the "RE-WRITE FOR DVD FIRMWARE".
DVD mode (No disc)	STOP	6	2 sec.	Can be checked of the INITIAL DATA of MEMORY IC (DVD side). Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
DVD mode (No disc)	STOP	7	2 sec.	Releasing of PARENTAL LOCK. Refer to the "PARENTAL CONTROL - RATING LEVEL". NOTE: The function will only work without the setting of DVD disc at DVD mode.
DVD mode (STOP)	STOP	8	2 sec.	Region setting. Refer to the "WHEN REPLACING NEW DVD LOADER".

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.

Parts replacing time does not mean the life span for individual parts.

Also, long term storage or misuse may cause transformation and aging of rubber parts.

The following list means standard hours, so the checking hours depends on the conditions.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
T Brake Band		●	●	●	●	
Clutch Ass'y		●	●	●	●	
Idler Arm Ass'y		●	●	●	●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	●	●	●	●	Clean the Head

■ : Clean

● : Check it and if necessary, replace it.

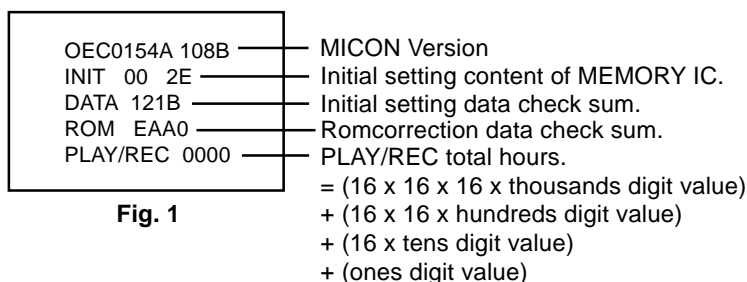
CONFIRMATION OF HOURS USED

PLAY/REC total hours can be checked on the screen.

Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the VCR mode.
3. Press both CH UP button on the set and the FF button on the set for more than 2 seconds.
The **Fig. 1** screen will appear on TV Monitor.
4. After the confirmation of using hours, turn off the power.



PREVENTIVE CHECKS AND SERVICE INTERVALS

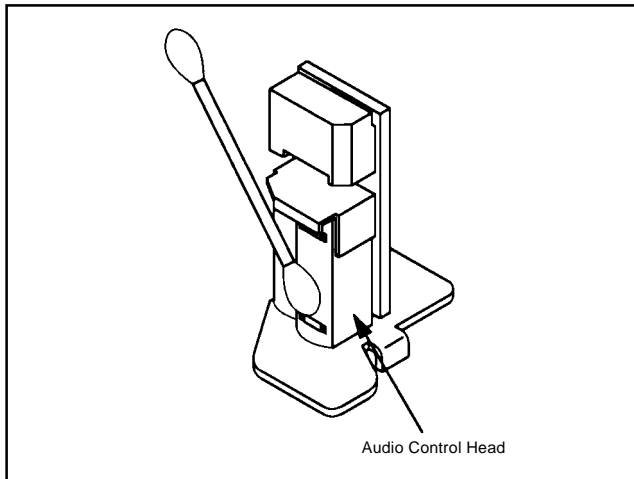
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

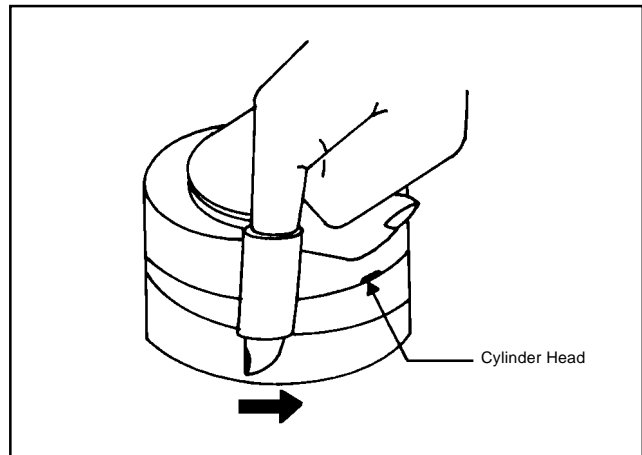
3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly.

Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1 and 2.

NOTE: After the DATA change, if the ENTER button is not pressed at the DATA selection mode and the power is turned off, the DATA change does not performed.
After the DATA change, press the ENTER button by all means and set to the ADDRESS selection mode, then turn off the power.

VCR side EEPROM (IC3099) initial setting

NOTE: No need setting for after INI 35.

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	2E	67	92	82	64	64	4A	86	0B	2A	86	35	8A	08	0A	01
10	B2	9A	97	8C	A1	20	31	04	88	A5	9F	3A	00	10	BF	00
20	3A	11	22	70	61	2A	3A	00	0B	00	00	00	9A	B2	00	29
30	41	FF	D7	70	7A	F0	---	---	---	---	---	---	---	---	---	---

Table 1

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the VCR mode.
3. Press both CH UP button on the set and the FF button on the set for more than 2 seconds.
ADDRESS and DATA will appear on TV Monitor as **Fig 1**.

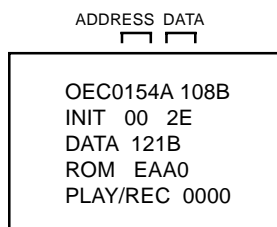


Fig. 1

4. ADDRESS is now selected and should "blink". Using the Tracking + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will "blink".
6. Again, step through the DATA using Tracking + or - button until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 until all data has been checked.
9. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping.

10. Turn on the POWER, and set to the DVD mode.
11. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
12. After the finishing of the initializing of shipping, the unit will turn off automatically.
The unit will now have the correct DATA for the new MEMORY IC.

WHEN REPLACING EEPROM (MEMORY) IC

DVD side EEPROM (IC4002) initial setting

NOTE: INI 3FF data can not be set.

The datas for the address excepting from 3A0 to 3FF are displayed "ERR". This unit is not defective.

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
3A0	01	01	00	01	02	00	00	00	02	1f	01	01	02	02	02	01
3B0	02	00	02	02	02	02	00	00	00	00	00	00	00	00	00	00
3C0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3D0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3F0	00	00	00	00	00	00	00	00	00	00	00	00	00	06	*1	---

*1

INI	USA	CANADA
0A	03	02

Table 2

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the DVD mode.
3. Press both Channel button **(6)** on the remote control and the STOP button on the set for more than 2 seconds.
ADDRESS and DATA will appear on TV Monitor as **Fig 2** and the ADDRESS is now selected.

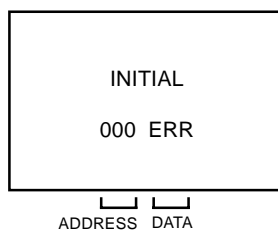


Fig. 2

4. Input the ADDRESS by using Channel +/- button or the following buttons below.
Numbers are 10 keys from 0 to 9, Alphabets are
A: VCR EJECT, B: DVD OPEN/CLOSE, C: DVD/VCR, D: TIMER REC, E: INPUT SELECT, F: DISPLAY/CALL.
5. Press ENTER to select DATA.
6. Again, step through the DATA using Channel + or - button until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 until all data has been checked.
9. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping.

10. Turn on the POWER, and set to the DVD mode.
11. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
12. After the finishing of the initializing of shipping, the unit will turn off automatically.
The unit will now have the correct DATA for the new MEMORY IC.

WHEN REPLACING NEW DVD LOADER

NOTE: If a service repair is undertaken where it has been required to change the New DVD Loader, Region setting is needed. If the Region setting does not performed, only the Region Free disc can be played. Region setting can only be done once. So, take notice very carefully.

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the DVD mode.
3. Press both Channel button **(8)** on the remote control and the STOP button on the set for more than 2 seconds.
Tray will open.
4. Place your Region setting disc on the tray and close.
Writing will start.
5. After the writing, the writing Region No. will appear on the TV Monitor.

Perform the initializing of shipping

6. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
7. After the finishing of the initializing of shipping, the unit will turn off automatically.

Check for the Region No.

8. Turn on the POWER, and set to the DVD mode.
9. Press both CH DOWN button on the set and the DVD/VCR button on the set for more than 2 seconds.
Information screen will be displayed on the TV Monitor. **(Refer to Fig. 1)**
10. If the writing Region No. is appeared, the Region setting is completed.
11. Turn off the power.

	Vaddis	Timer
Ver.	RXM53021	OEC0154A108B
C.Sum	06010040	121B
Accum	000000	0000
DVD	MATUSHITADVD-RAM SW-9573 MR19	
	Region-1	Region No.

Fig. 1

RE-WRITE FOR DVD FIRMWARE

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the DVD mode.
3. Confirm that the "No Disc" will be appeared on the screen.
A disc is already inserted, eject the disc and power it on again.
4. Press both Channel button **(2)** on the remote control and the STOP button on the set for more than 2 seconds.
5. The tray will open automatically.
6. Press OPEN/CLOSE button on the set to check if all the keys on the unit do not function.
NOTE: To check if DVD Write mode is set.
7. Place the Up-Date Disc and close the tray by hand. **(Refer to SERVICING FIXTURE AND TOOLS)**
8. Automatic read will start and "SDRAM writing" will be displayed on the screen.
9. Approx. 7 seconds later, the tray will open automatically. Remove the Up-Date Disc.
The display will change to "FLASH writing".
10. Then, Approx. 2 minutes 30 seconds later, the above indication will disappear and the tray will close automatically.
When the "Please Reboot" appears on the screen, the writing will be finished.
NOTE: Do not turn off the unit on the way or push the tray by hand to close it.
Up-Date error will happen and can not be done with the Up-Date of Up-Date Disc.
11. Unplug the AC cord, then plug it in.

After the write, set to the initializing of shipping.

12. Turn on the POWER, and set to the DVD mode.
13. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
14. After the finishing of the initializing of shipping, the unit will turn off automatically.

CHECK FOR THE FIRMWARE VERSION

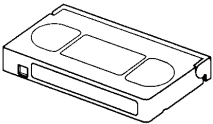
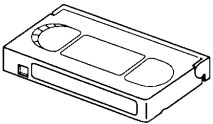
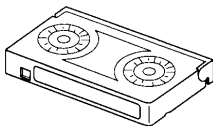
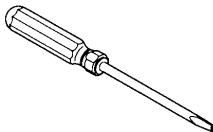
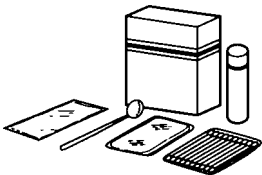


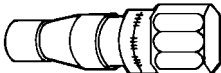
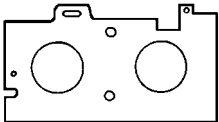
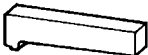
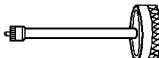
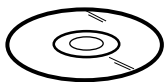
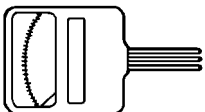
15. Turn on the POWER, and set to the DVD mode.
16. Press both CH DOWN button on the set and the DVD/VCR button on the set for more than 2 seconds.
Information screen will be displayed on the TV Monitor. **(Refer to Fig. 1)**
17. When the changed version displays, the Re-write will be completed.
18. Turn off the power

Firmware Version

	Vaddis	Timer
Ver.	RXM53021	OEC0154A108B
C.Sum	06010040	121B
Accum	000000	0000
DVD	MATUSHITADVD-RAM SW-9573 MR19	Region-1

Fig. 1

SERVICING FIXTURES AND TOOLS

<p>Alignment Tape</p>  <p>ST-N5 ST-NF</p>	<p>Back tension cassette gauge</p>  <p>70909103</p>	<p>Torque cassette gauge (KT-300NR)</p>  <p>70909199</p>	<p>Taper nut driver</p>  <p>70909228</p>
<p>VTR cleaning kit</p> 	<p>VTR lubrication kit</p> 	<p>Grease</p> 	<p>JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm)</p> 
<p>JG022 Master Plane</p> 	<p>JG024A Reel Disk Height Adjustment Jig</p> 	<p>JG153 X Value Adjustment Screwdriver</p> 	<p>JG176 Up-Date Disc</p> 
<p>JG185 Tentelometer</p> 			

Ref. No.	Part No.	Parts Name	Remarks
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG176	APJG176067	Up-Date Disc	Up-Date of the Firmware
JG185	APJG185000	Tentelometer	Confirmation of Tape Tension on Playback

PREPARATION FOR SERVICING

- While pressing the CH DOWN button on the set for more than 2 seconds, press the POWER button on the set simultaneously at the Power OFF. Although the DVD is connected, the DVD mode cannot be selected.
- Press both CH UP button on the set and the REC button on the set for more than 2 seconds.
(The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
- In case of using a cassette tape, press the EJECT button to insert or eject a cassette tape.
Turn on the power and re-check the cable before checking the trouble points.

When you servicing with connection of DVD, perform the operations above step 2 to step 3.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

- Turn on the power and set to the STOP mode.
- Set the master plane (**JG022**) and reel disk height adjustment jig (**JG024A**) on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
- While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig (**JG024A**) and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to $10(+2, -0)$ mm.
- Adjust the other reel in the same way.

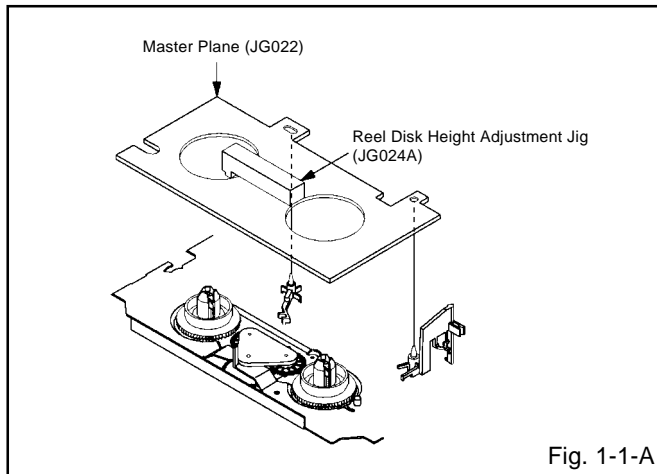


Fig. 1-1-A

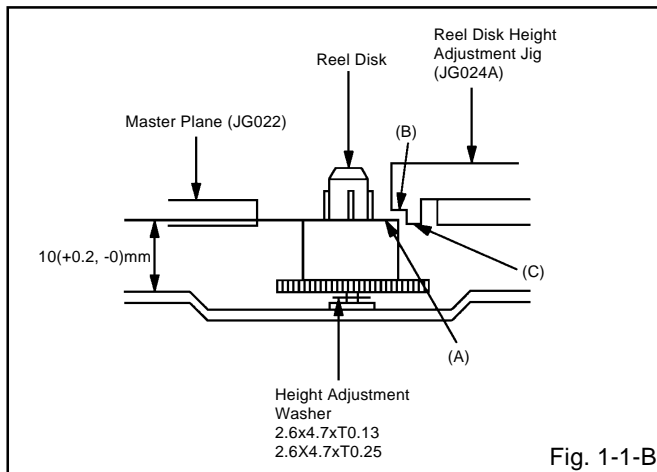


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

- Set to the PLAY mode.
- Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
- While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

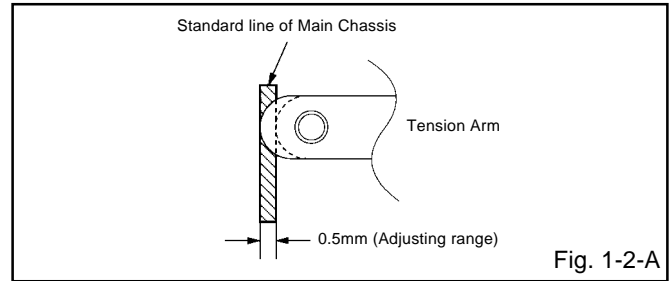


Fig. 1-2-A

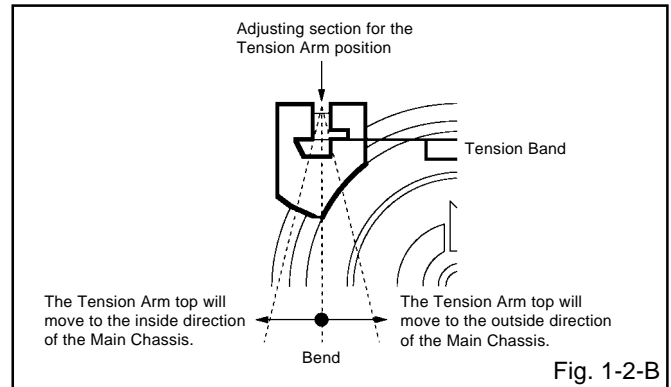


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

- Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
- Install the tentelometer (JG185) as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2 gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE (KT-300NR)

- After confirmation and adjustment of Tension Post position (**Refer to item 1-2**), load the cassette type torque tape (**KT-300NR**) and set to the PLAY mode.
- Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
- Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

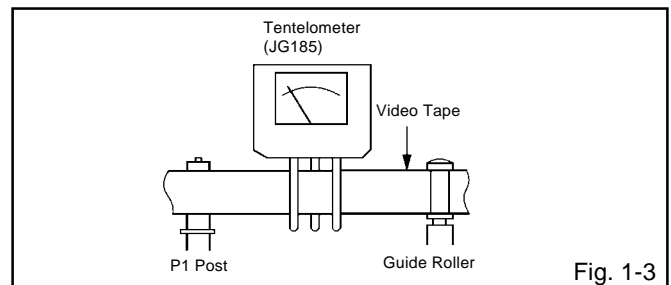


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Set to the Picture Search (Rewind) mode. (Refer to Fig.1-4-B)
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (**JG002F**) and Adapter (**JG002B**) on the S Reel. Turn the Torque Gauge (**JG002F**) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (Refer to Fig. 1-4-B)

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of Fig. 1-4-A.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (**JG002E**) and Adapter (**JG002B**) on the T reel. Turn the Torque Gauge (**JG002E**) counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

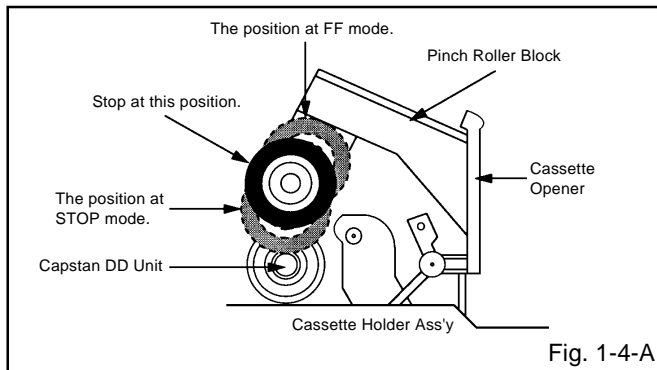


Fig. 1-4-A

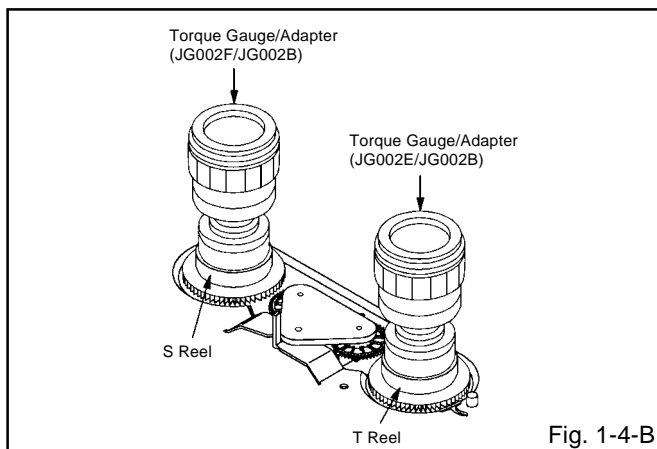


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (Monoscope of ST-N5 MODE2).
2. Connect CH-1 of the oscilloscope to **TP101 (Envelope)** and CH-2 to **TP3001 (SW Pulse)**.
3. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
4. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
5. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
6. Adjust the PG shifter during playback. (Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

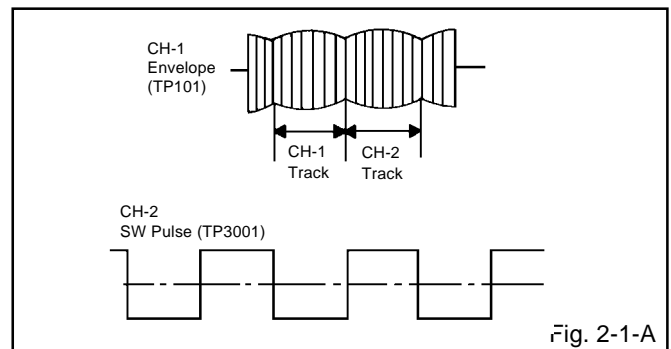


Fig. 2-1-A

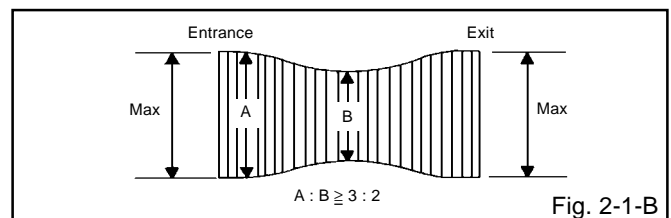


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (Monoscope of ST-N5 MODE2).
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Cap as shown in **Fig. 2-2-A**.
 - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
 - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
 - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

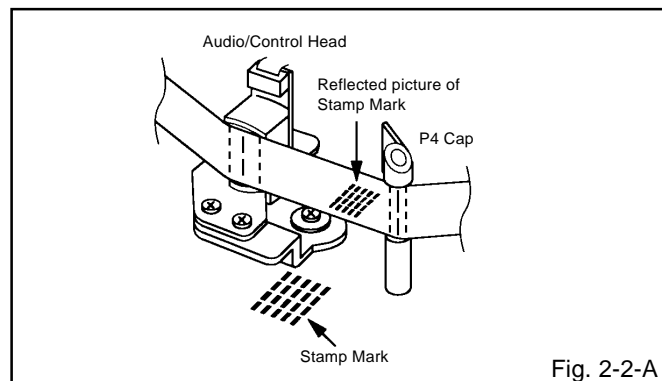


Fig. 2-2-A

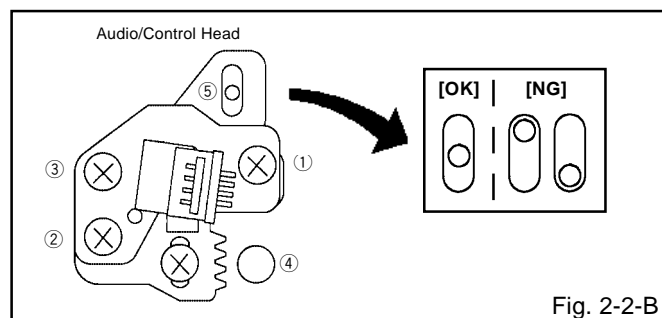


Fig. 2-2-B

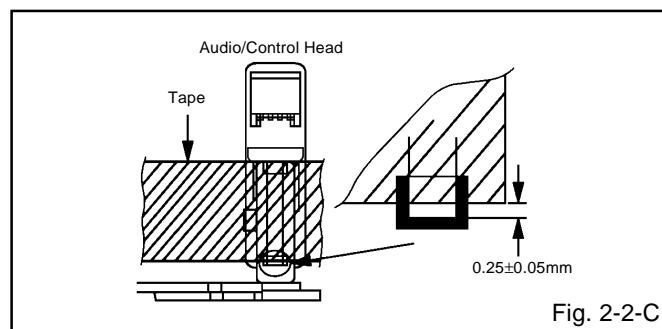


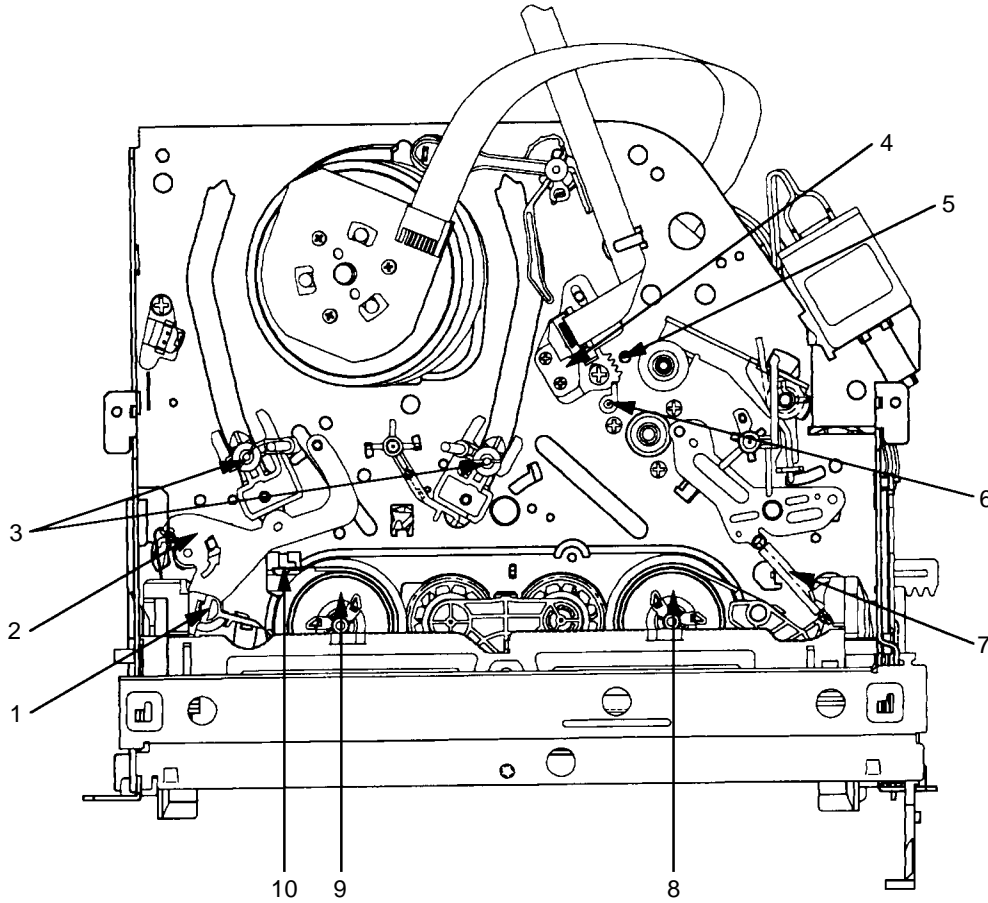
Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. (**Refer to item 1-1**)
2. Confirm and adjust the position of the Tension Post. (**Refer to item 1-2**)
3. Adjust the Guide Roller. (**Refer to item 2-1**)
4. Confirm and adjust the Audio/Control Head. (**Refer to item 2-2**)
5. Connect CH-1 of the oscilloscope to **TP3001** and CH-2 to **TP101**.
6. Playback the VHS Alignment Tape (Monoscope of ST-N5 MODE2).
7. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (**JG153**) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Then, check if the ⑤ section of **Fig. 2-2-B** is on the center position (or rather to the cylinder side). In case of the envelope maximum at the difference position from the center, adjust the matching of picture and sound again.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- | | |
|-----------------------------------|--|
| 1. Tension Connect | 6. P4 Post |
| 2. Tension Arm | 7. T Brake Spring |
| 3. Guide Roller | 8. T Reel |
| 4. Audio/Control Head | 9. S Reel |
| 5. X value adjustment driver hole | 10. Adjusting section for the Tension Arm position |

ELECTRICAL ADJUSTMENTS

Read and perform this adjustment when repairing the circuits or replacing electrical parts or PCB assemblies.

1. BASIC ADJUSTMENT

CAUTION

- When you exchange IC and Transistor for a heat sink, apply the silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

1-1: PG SHIFTER

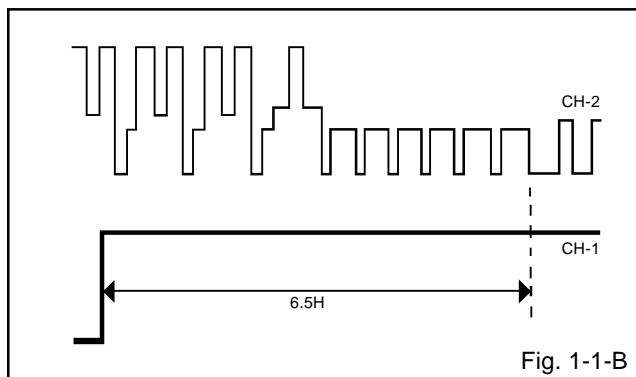
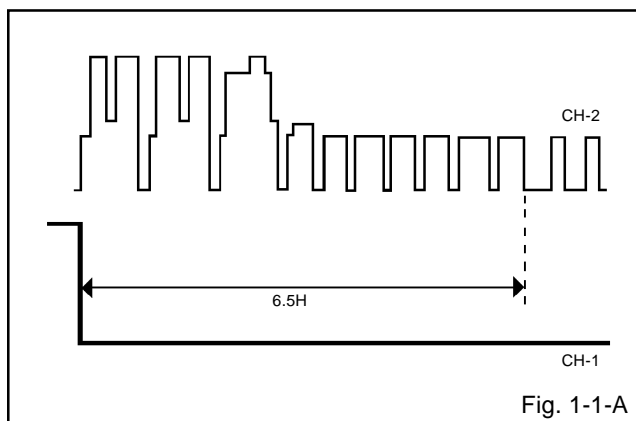
CONDITIONS

MODE-PLAYBACK

Input Signal-Alignment Tape

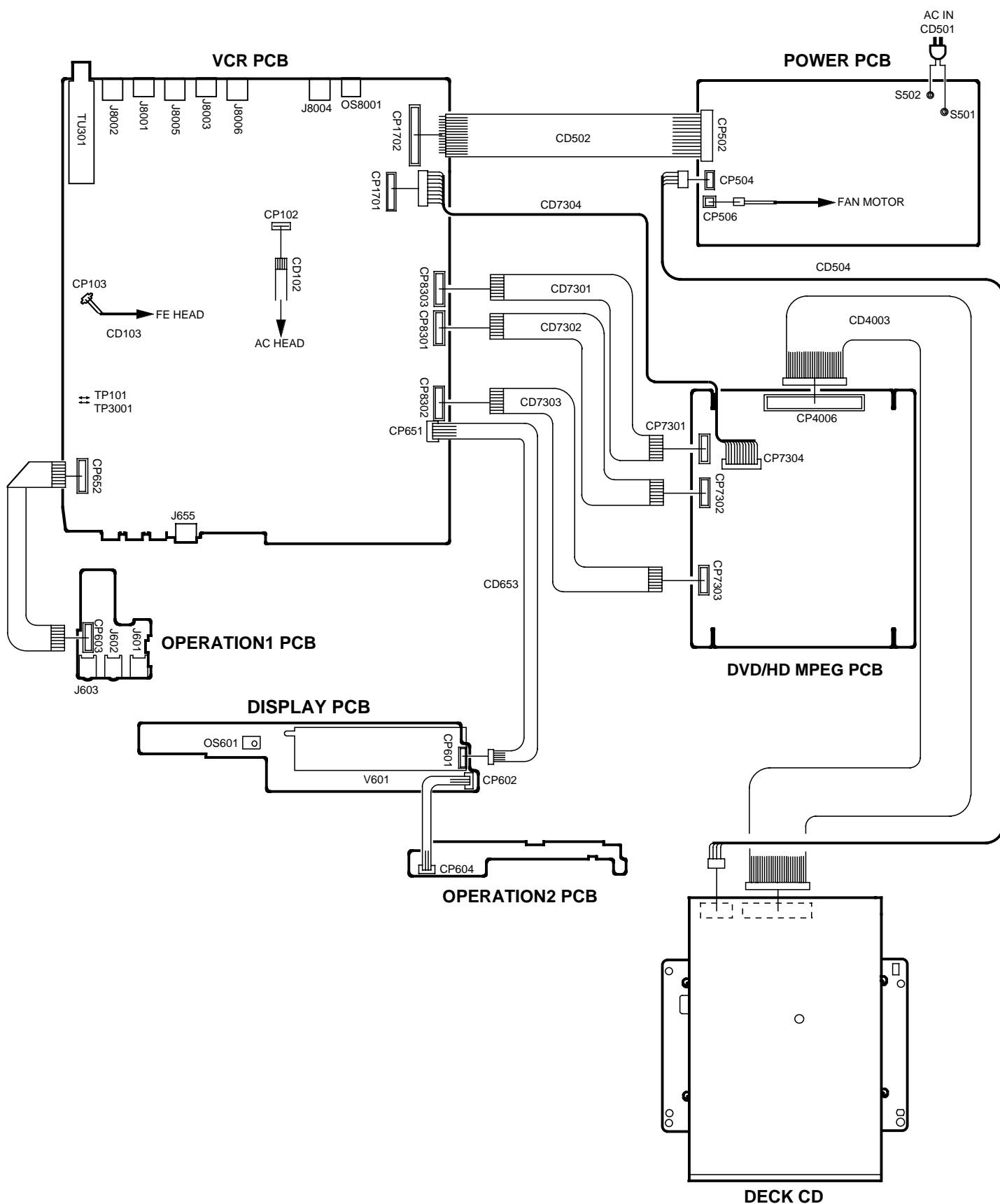
INSTRUCTIONS

- Connect CH-1 on the oscilloscope to **TP3001** and CH-2 to **J8005**.
- Playback the alignment tape.
- Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
- Press both CH UP button on the set and the STOP button on the set for more than 2 seconds.



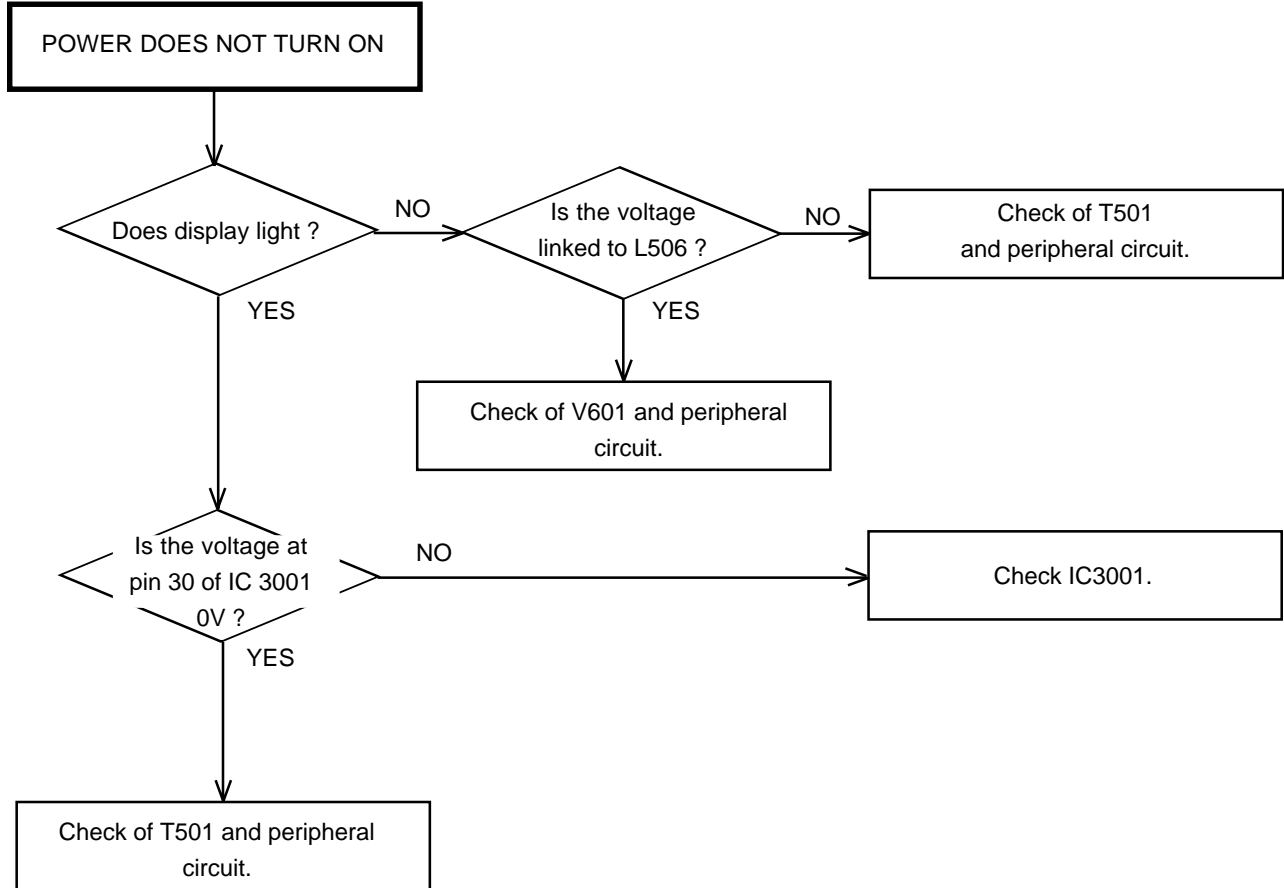
ELECTRICAL ADJUSTMENTS

2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)

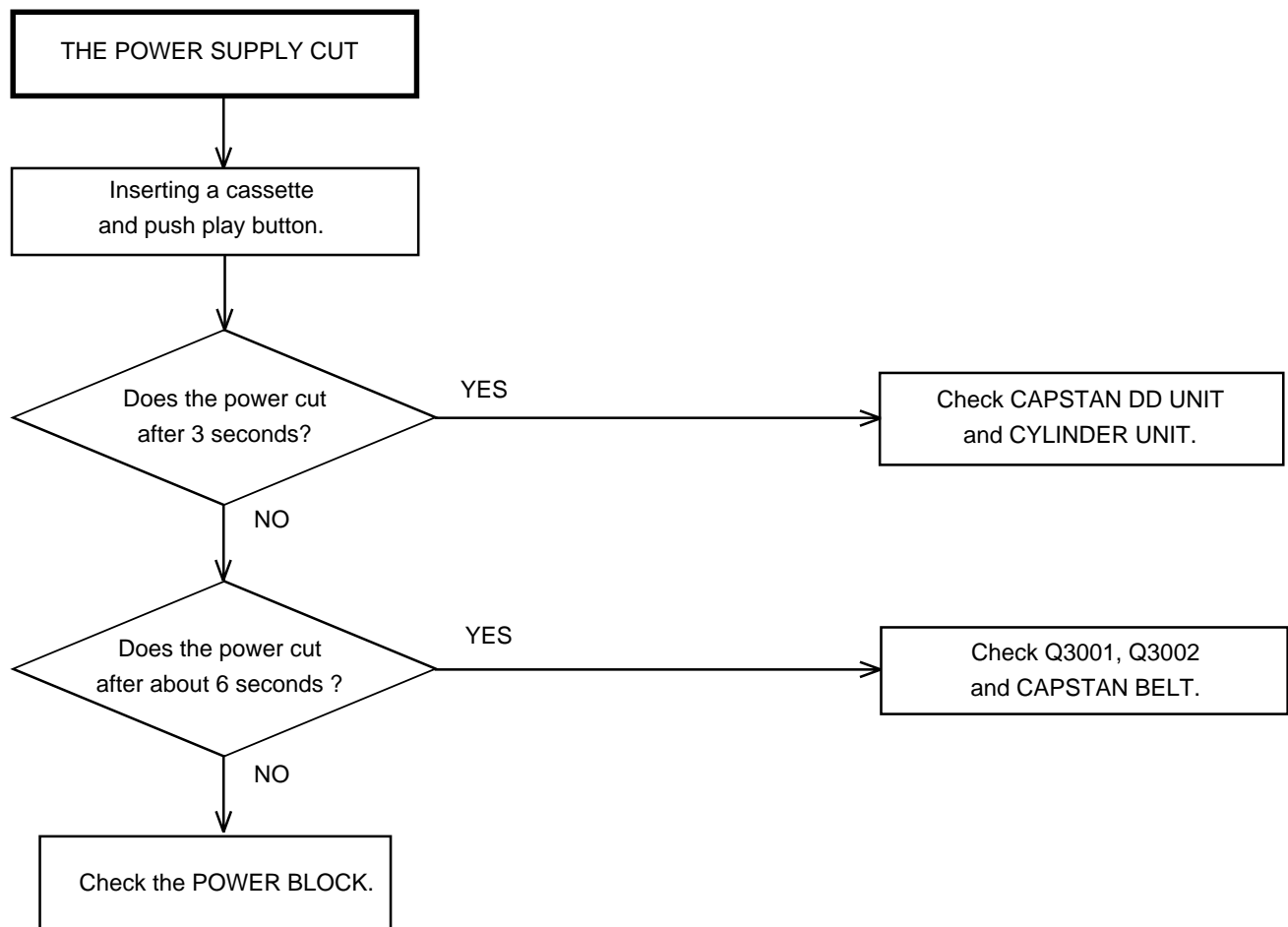


TROUBLESHOOTING GUIDE

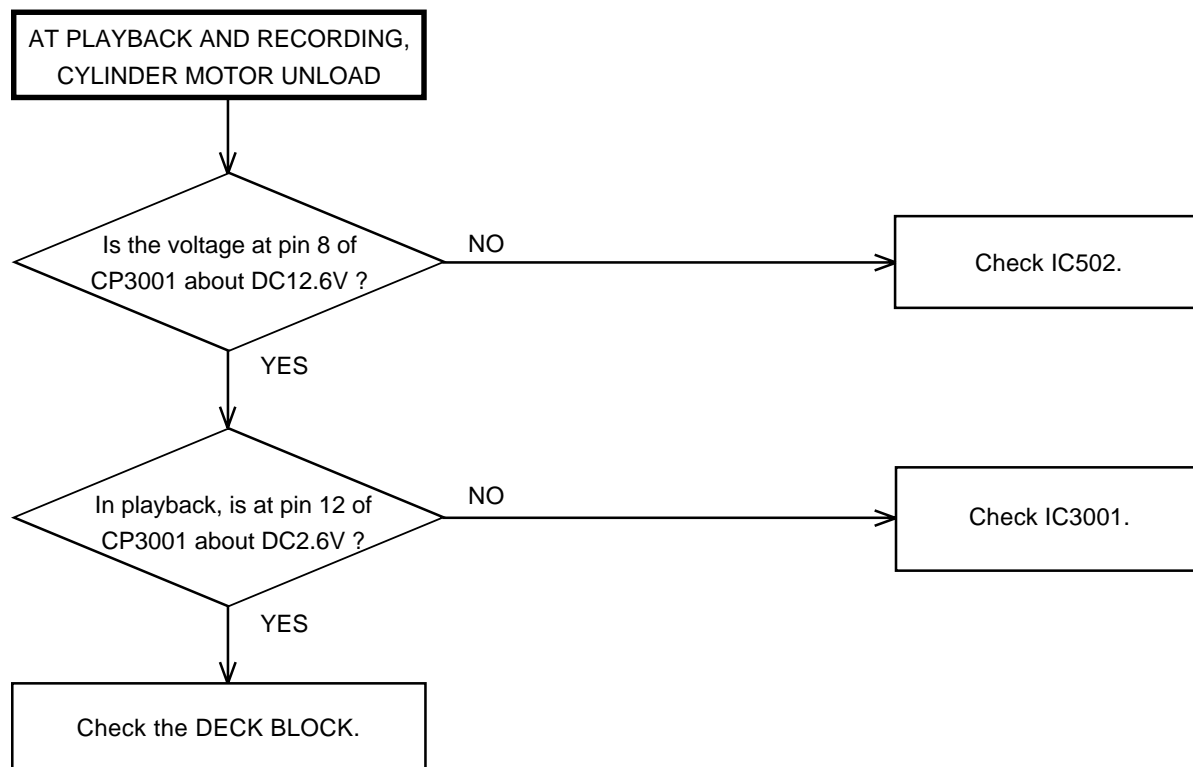
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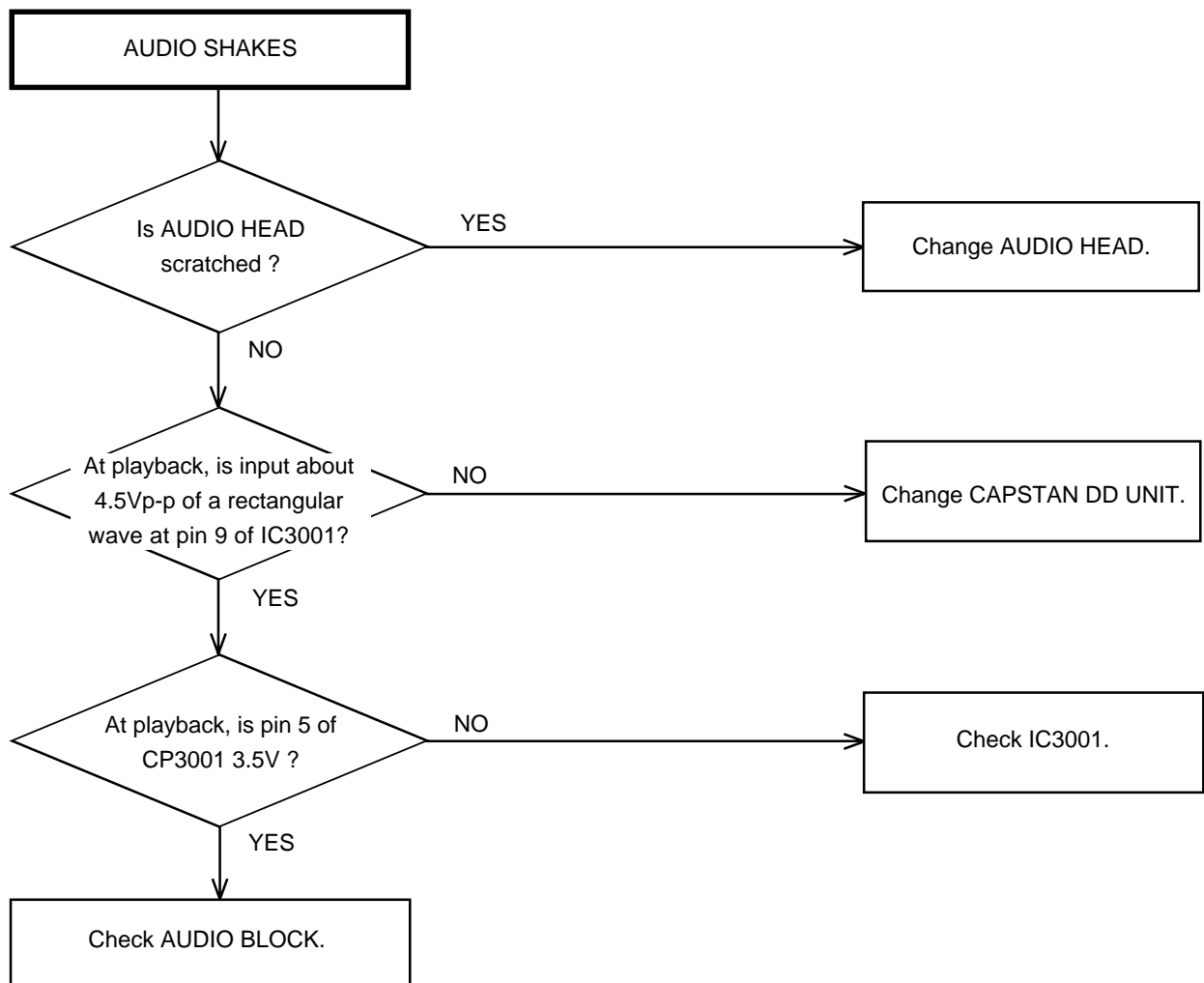
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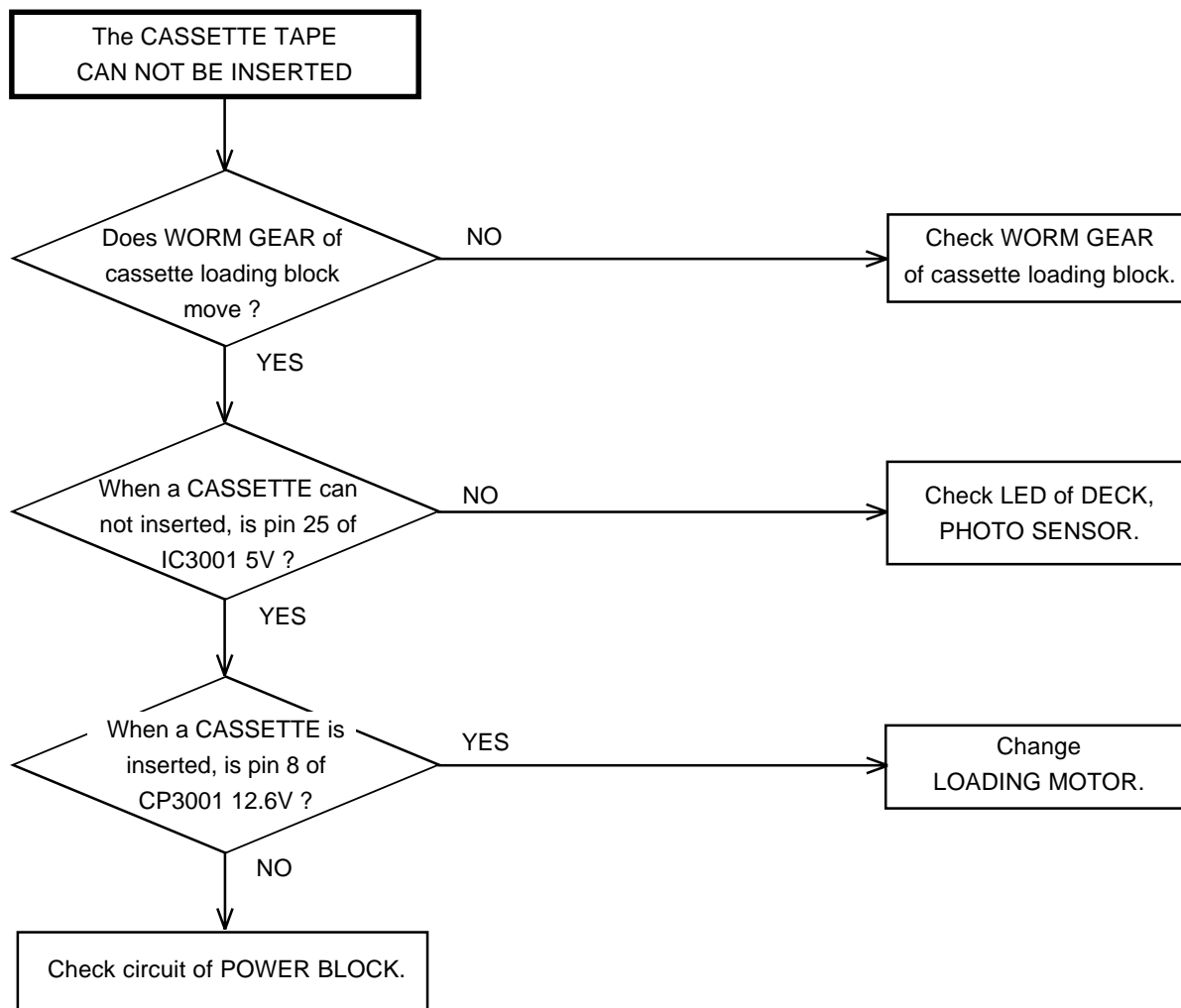
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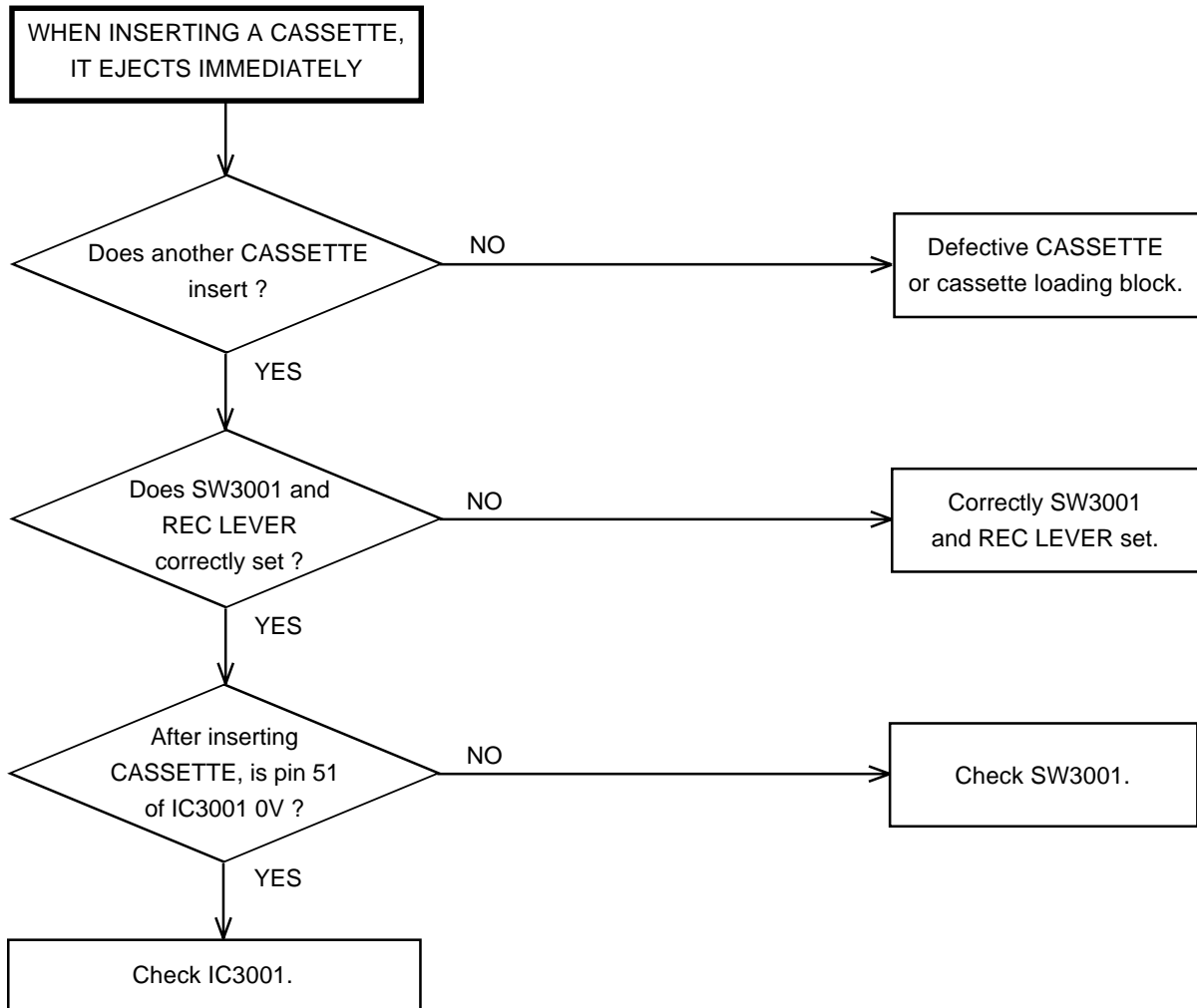
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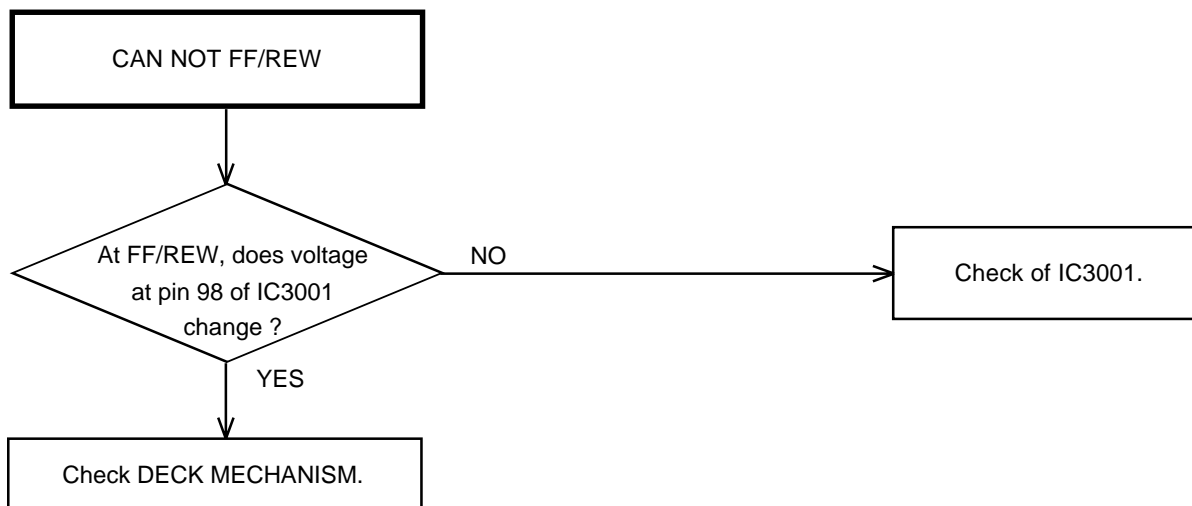
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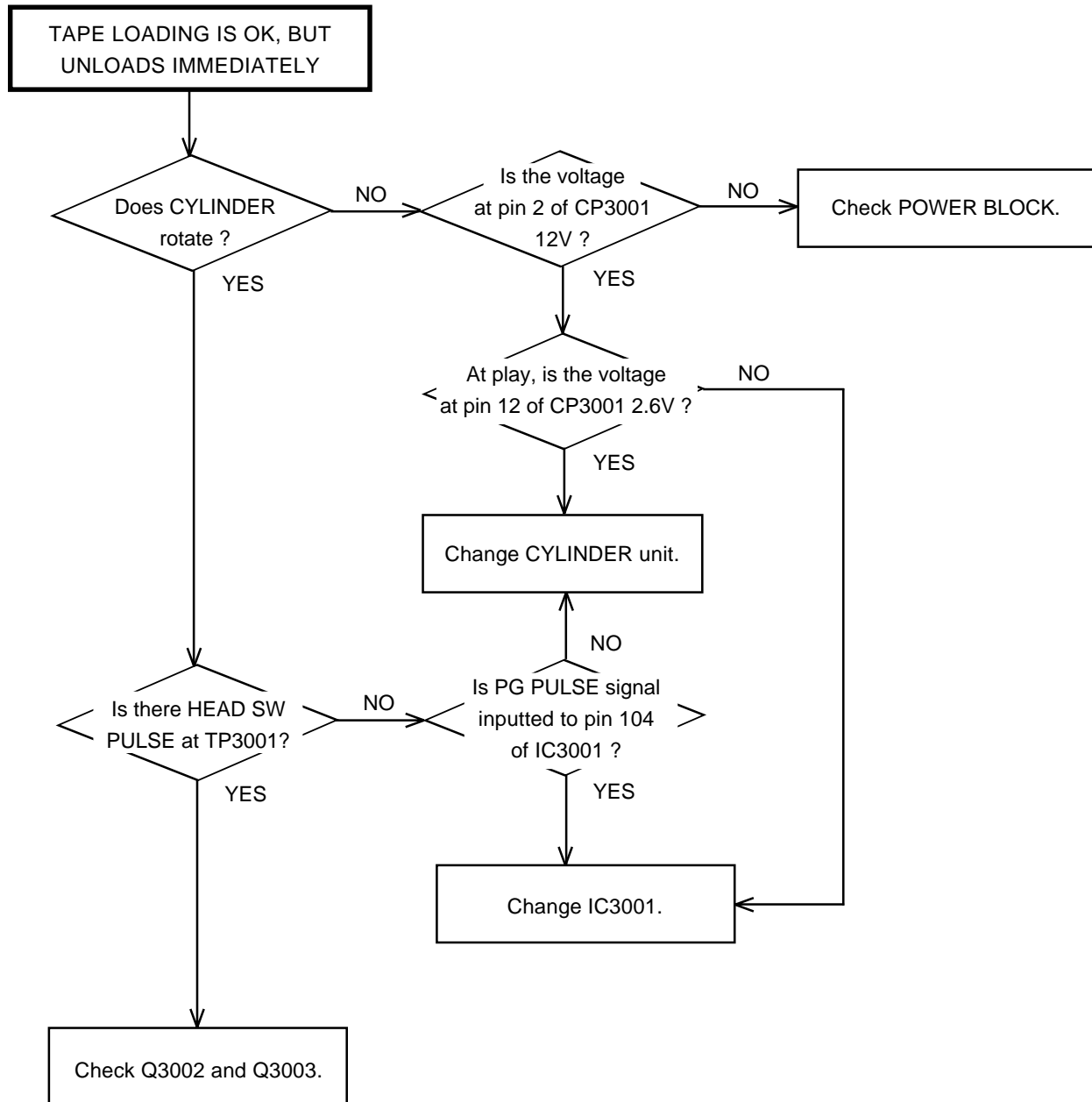
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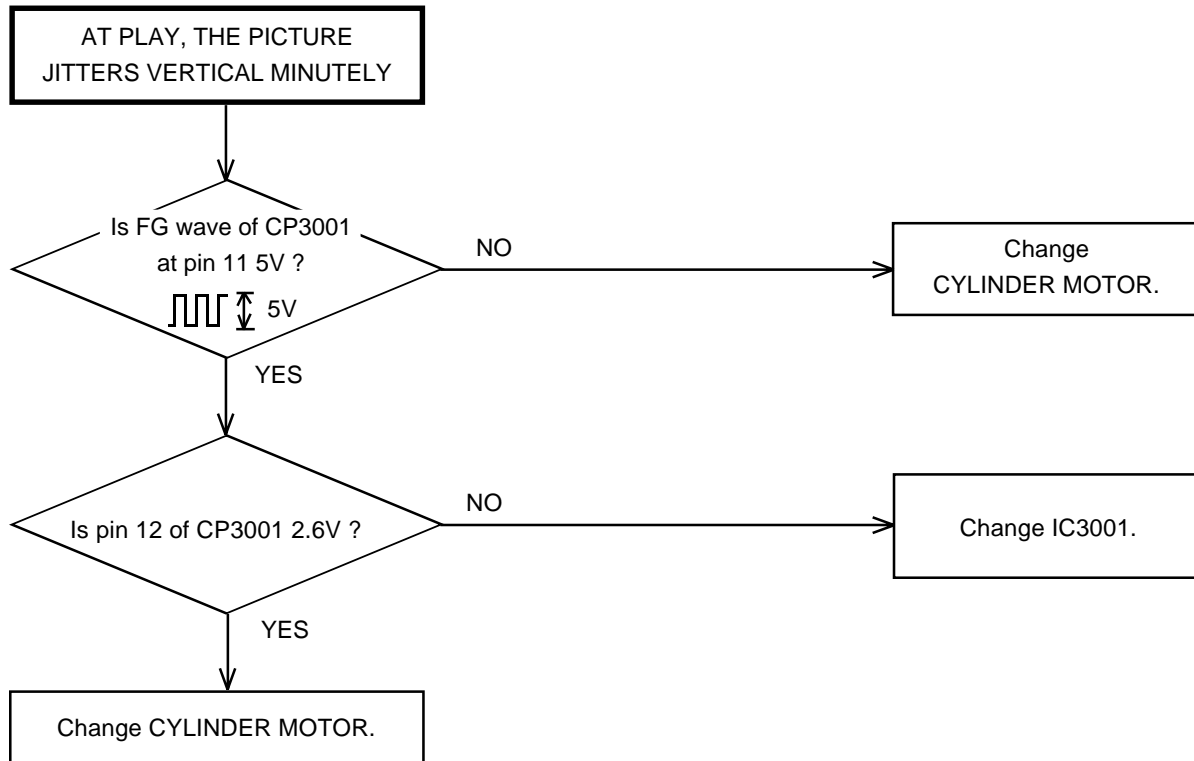
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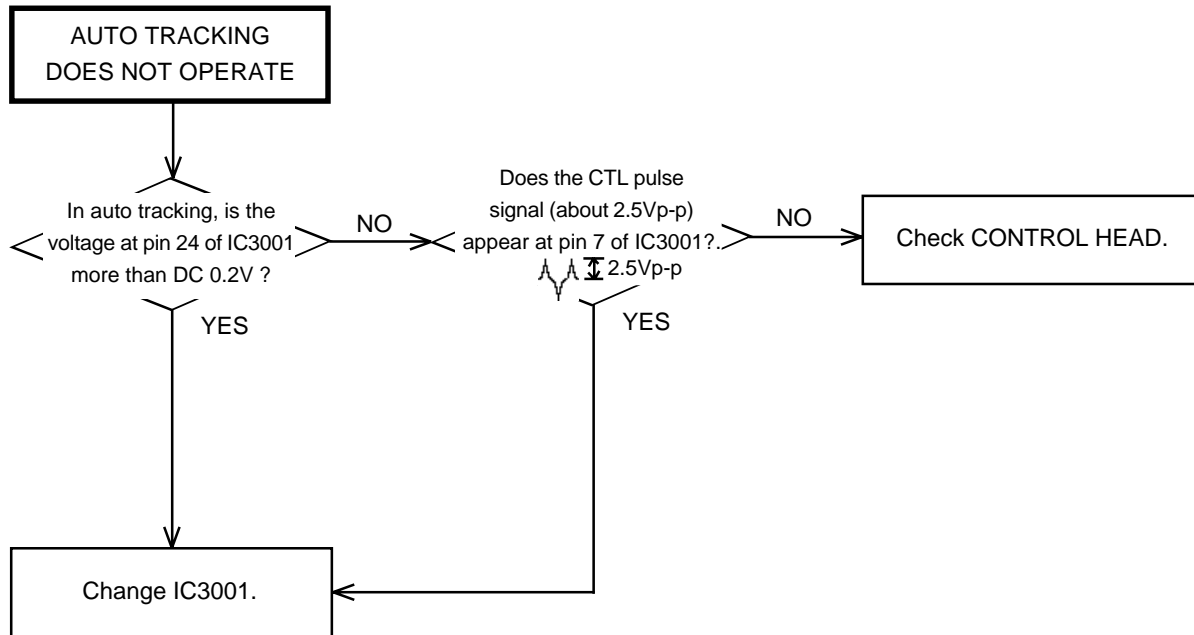
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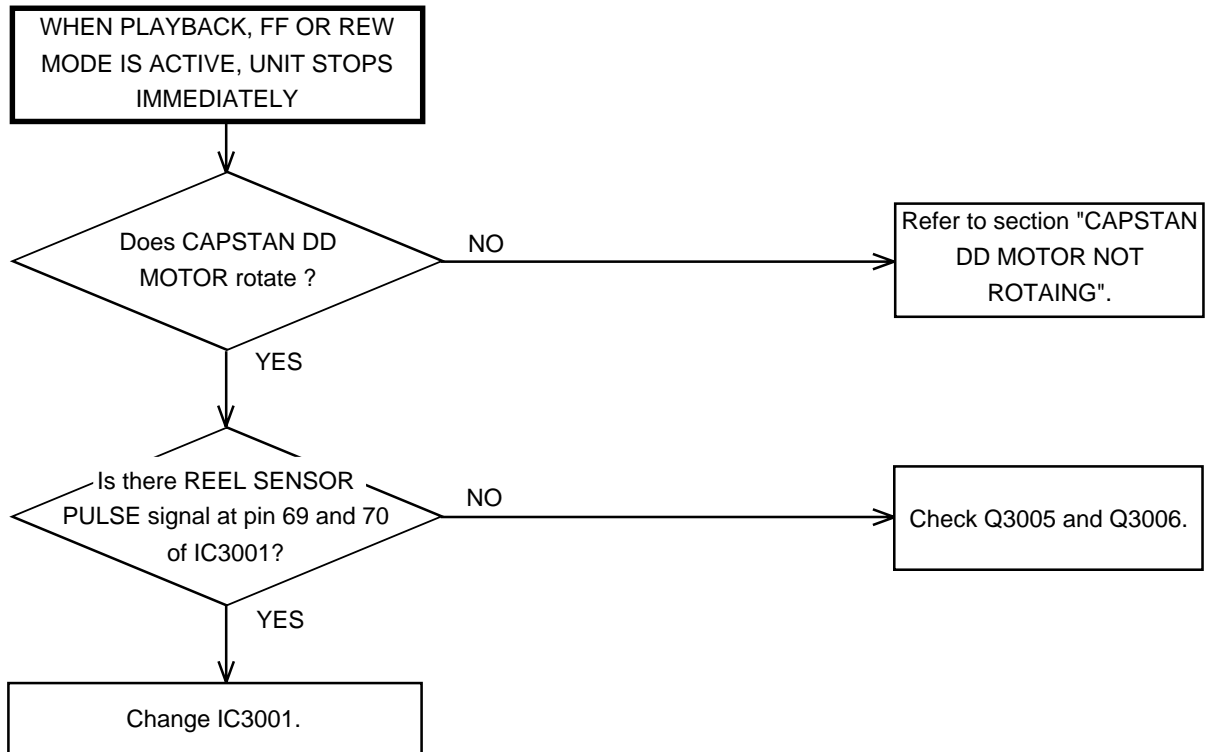
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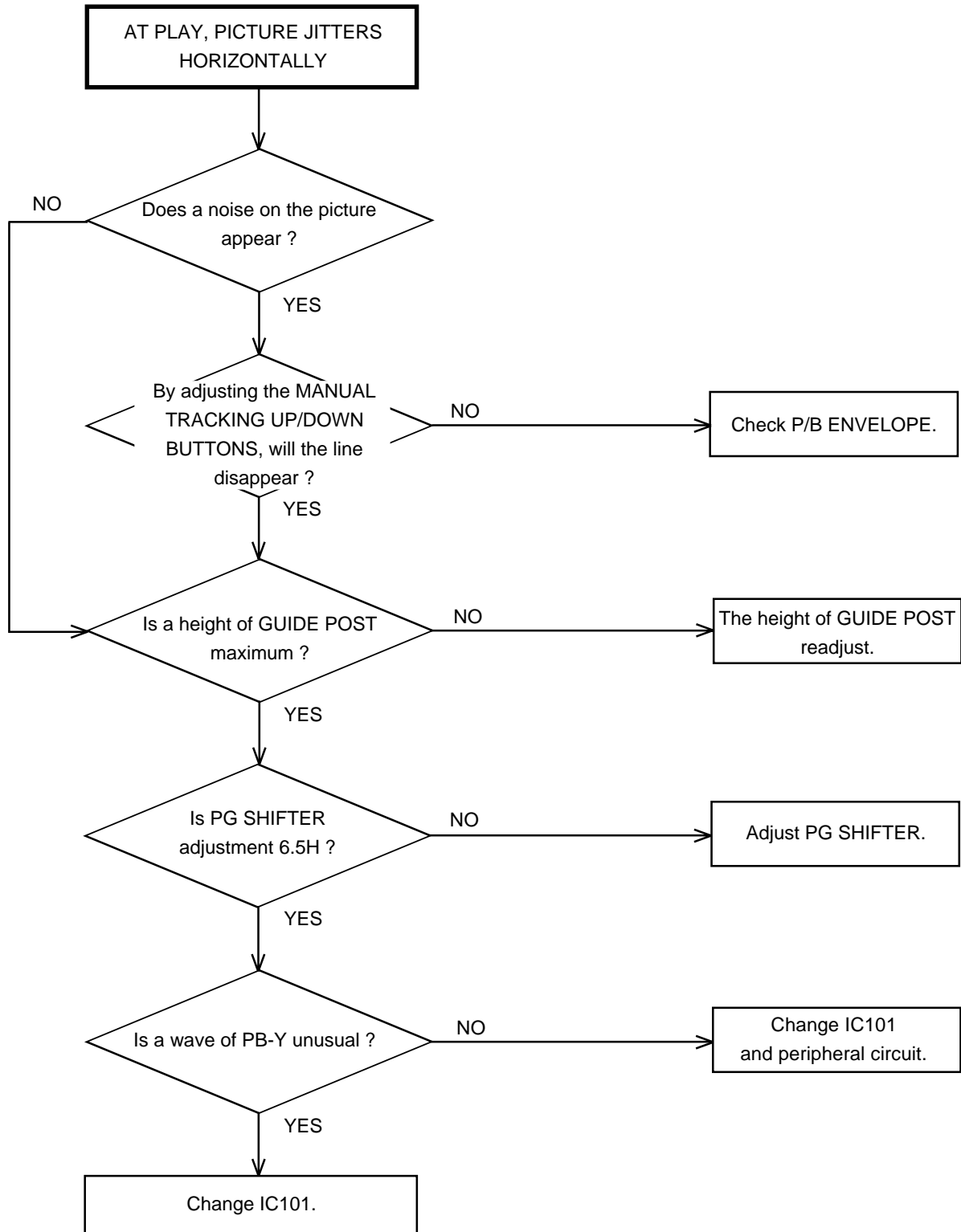
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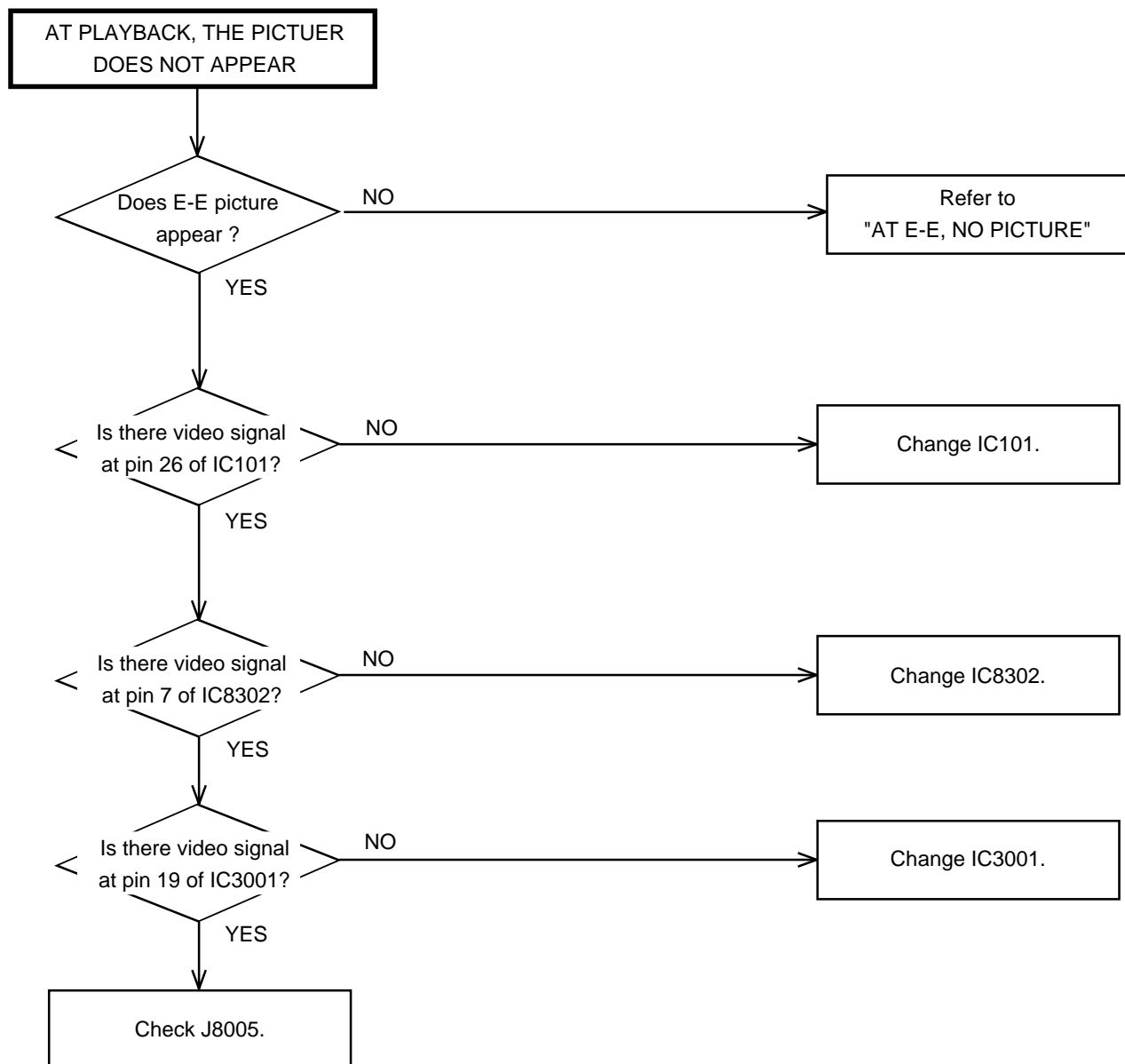
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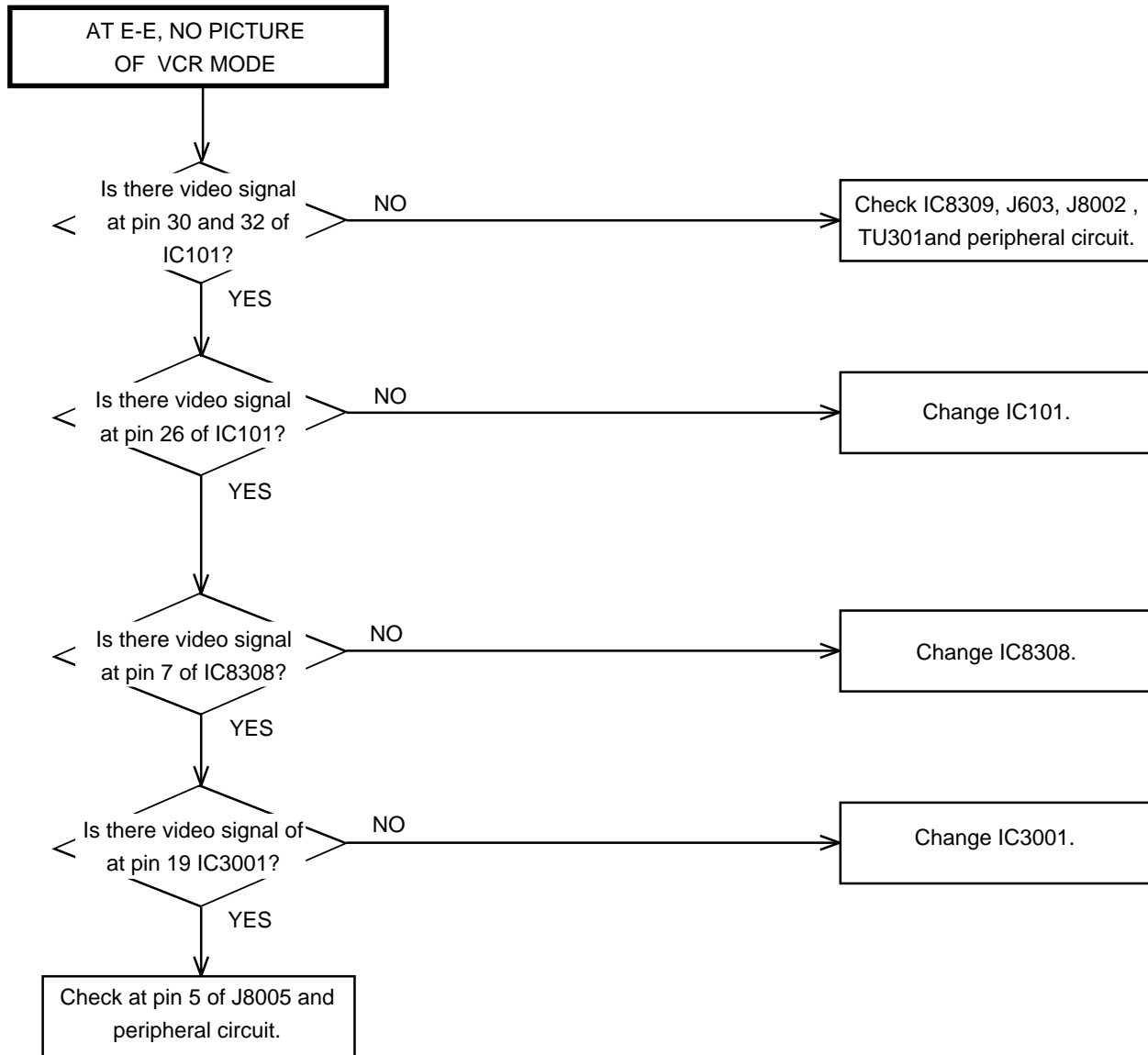
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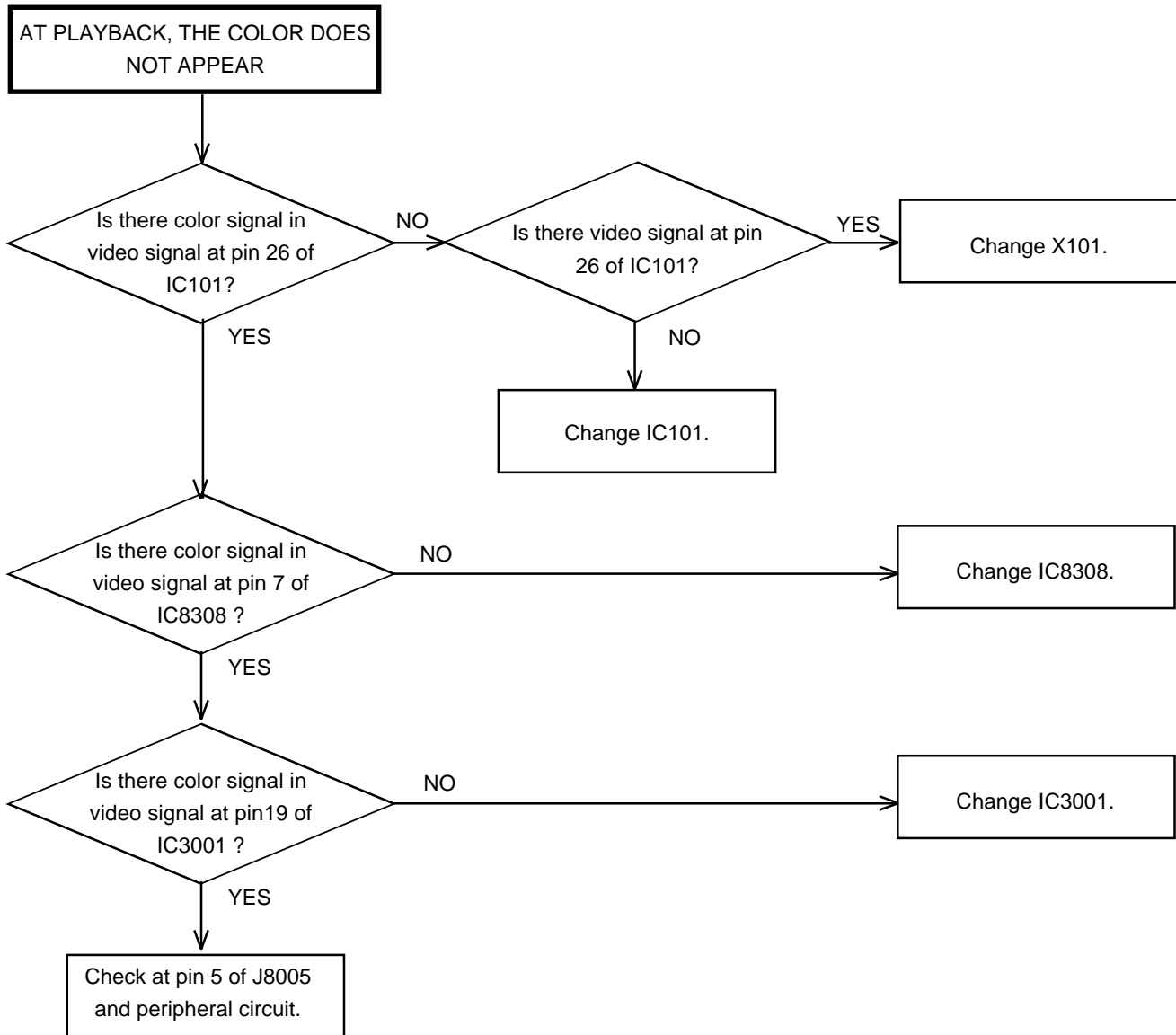
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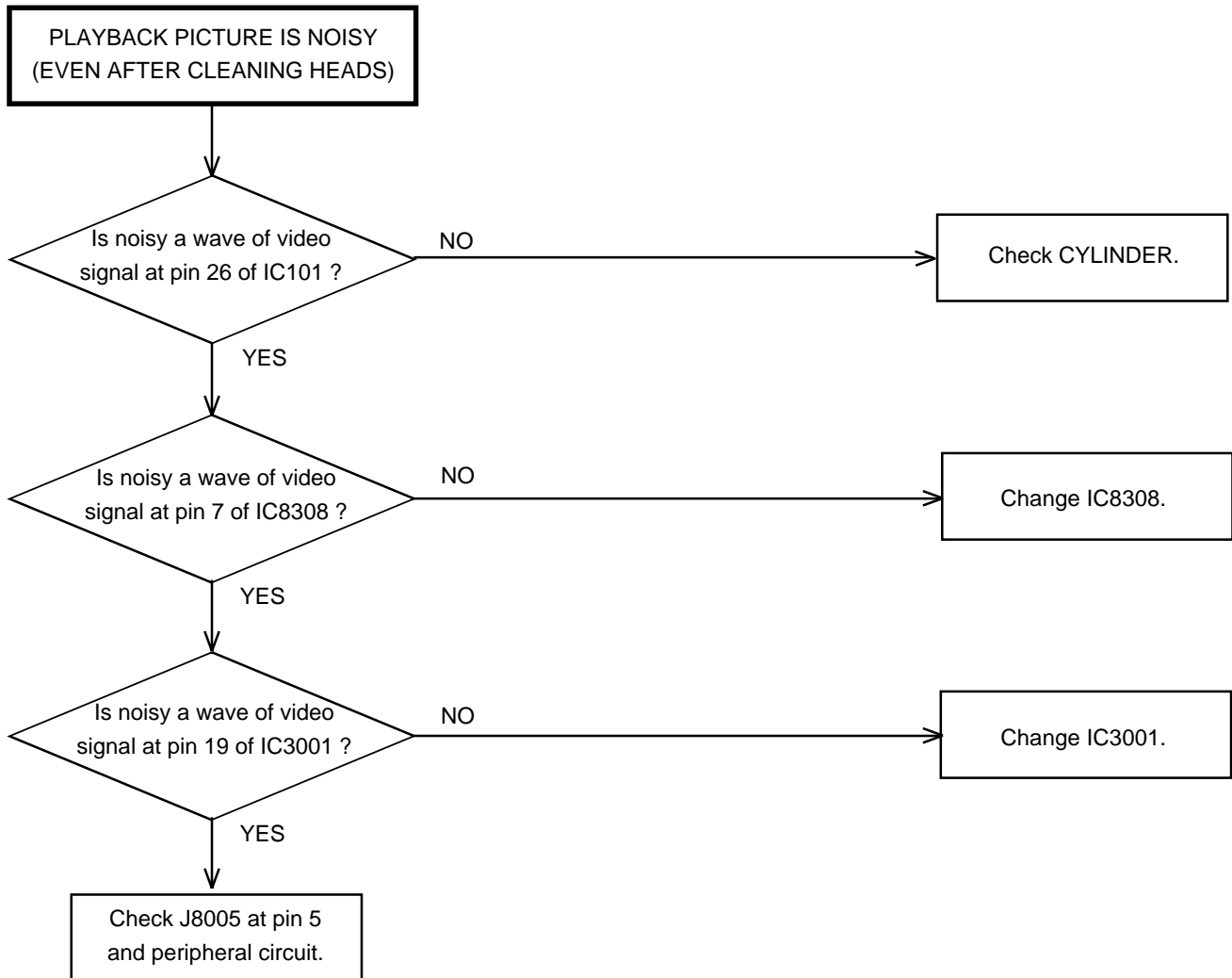
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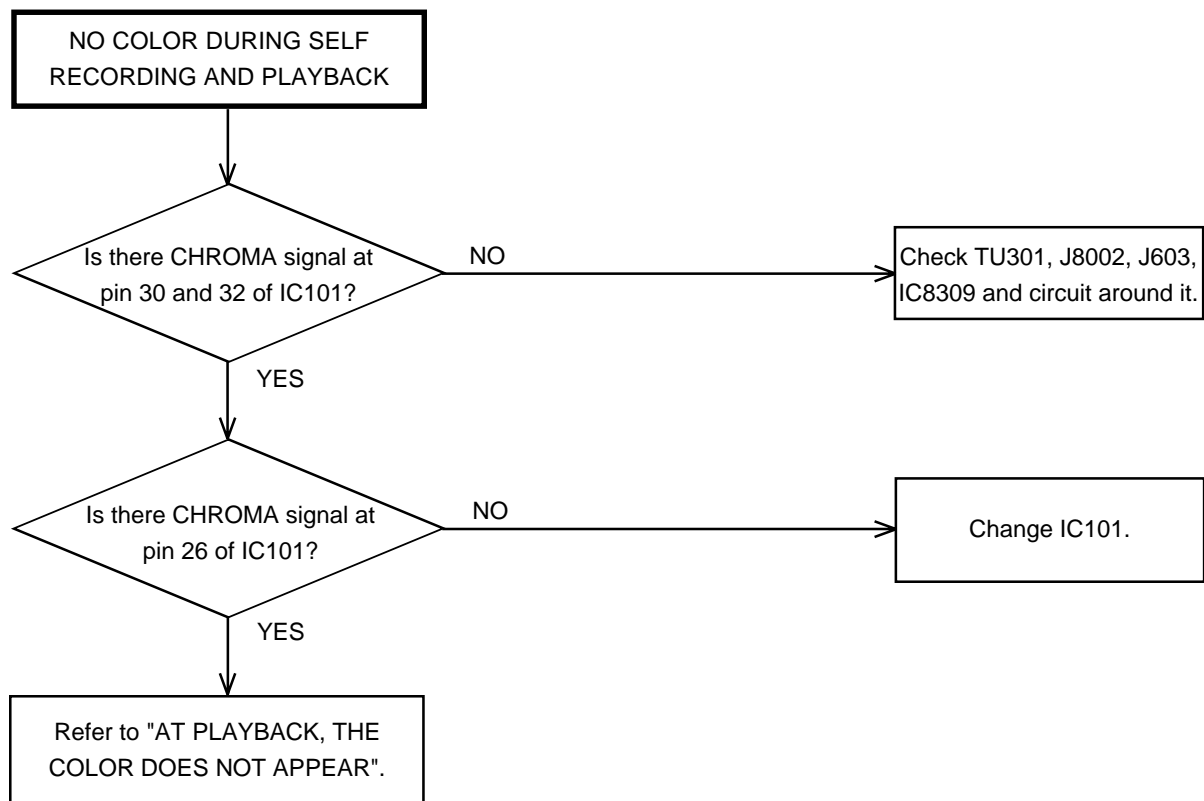
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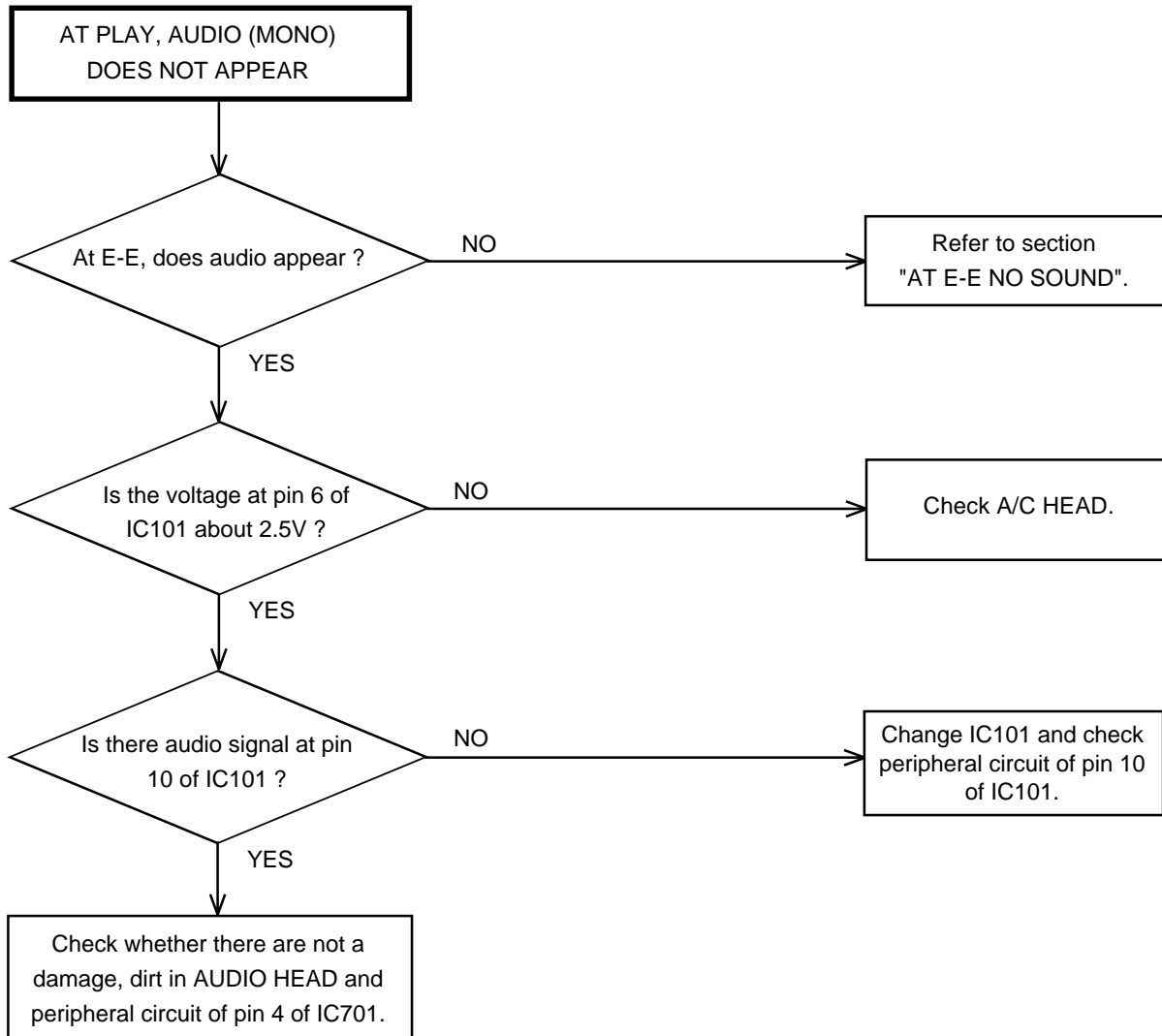
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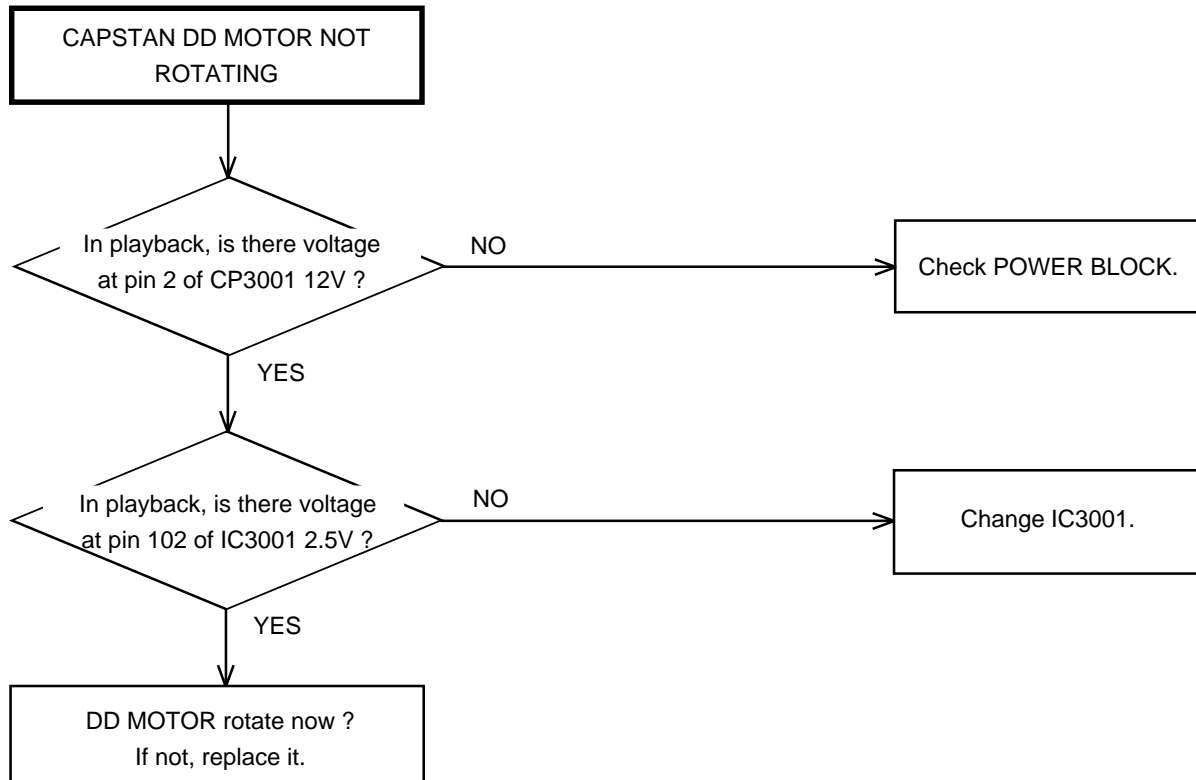
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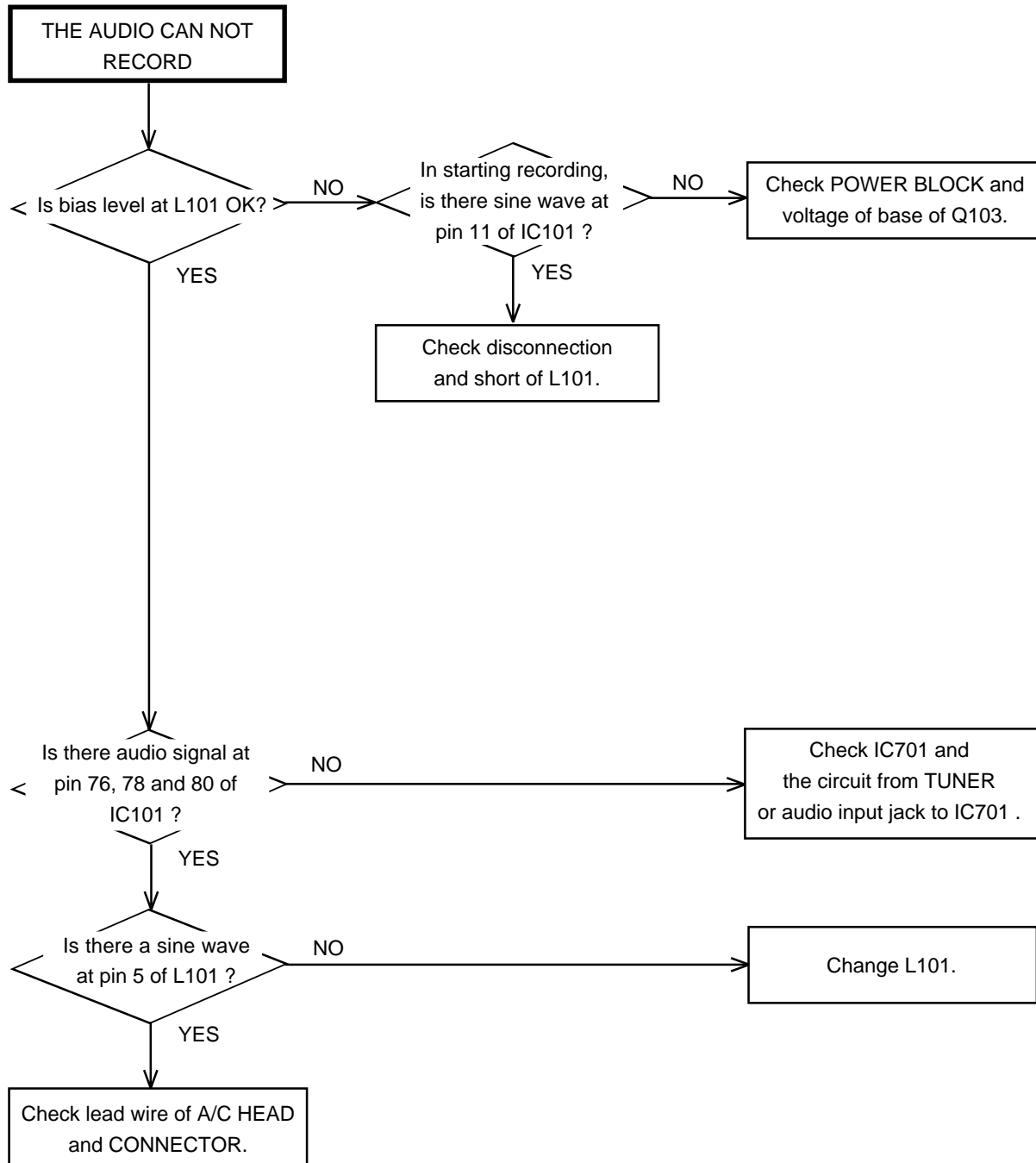
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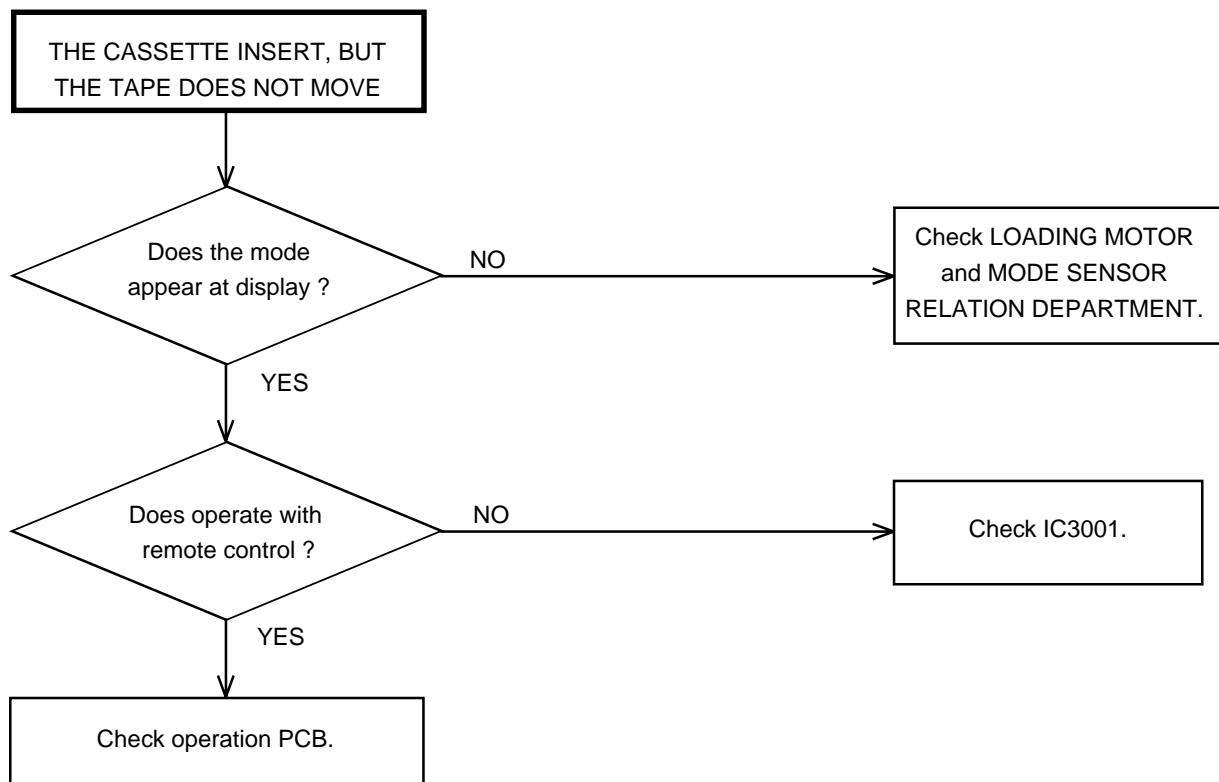
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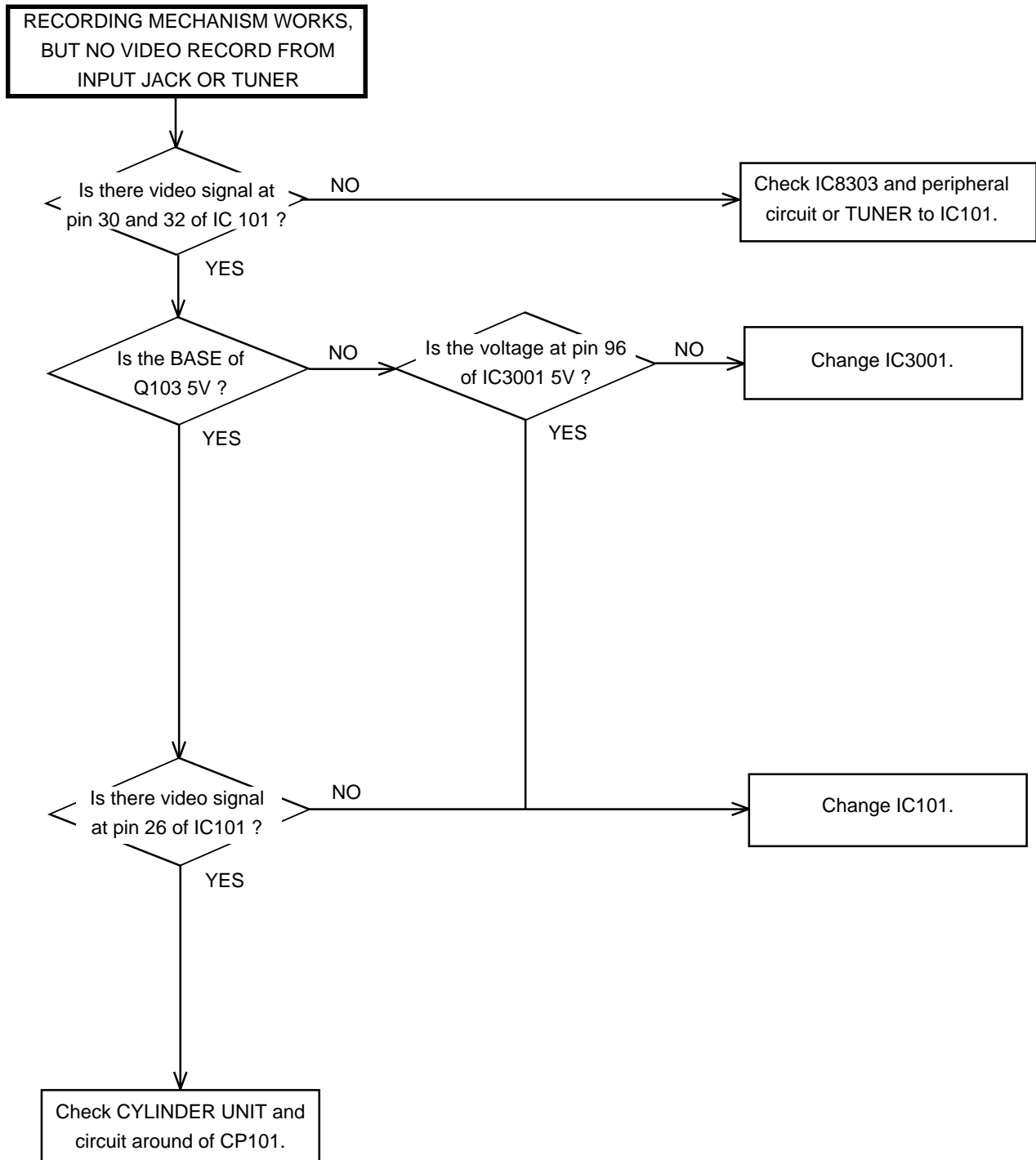
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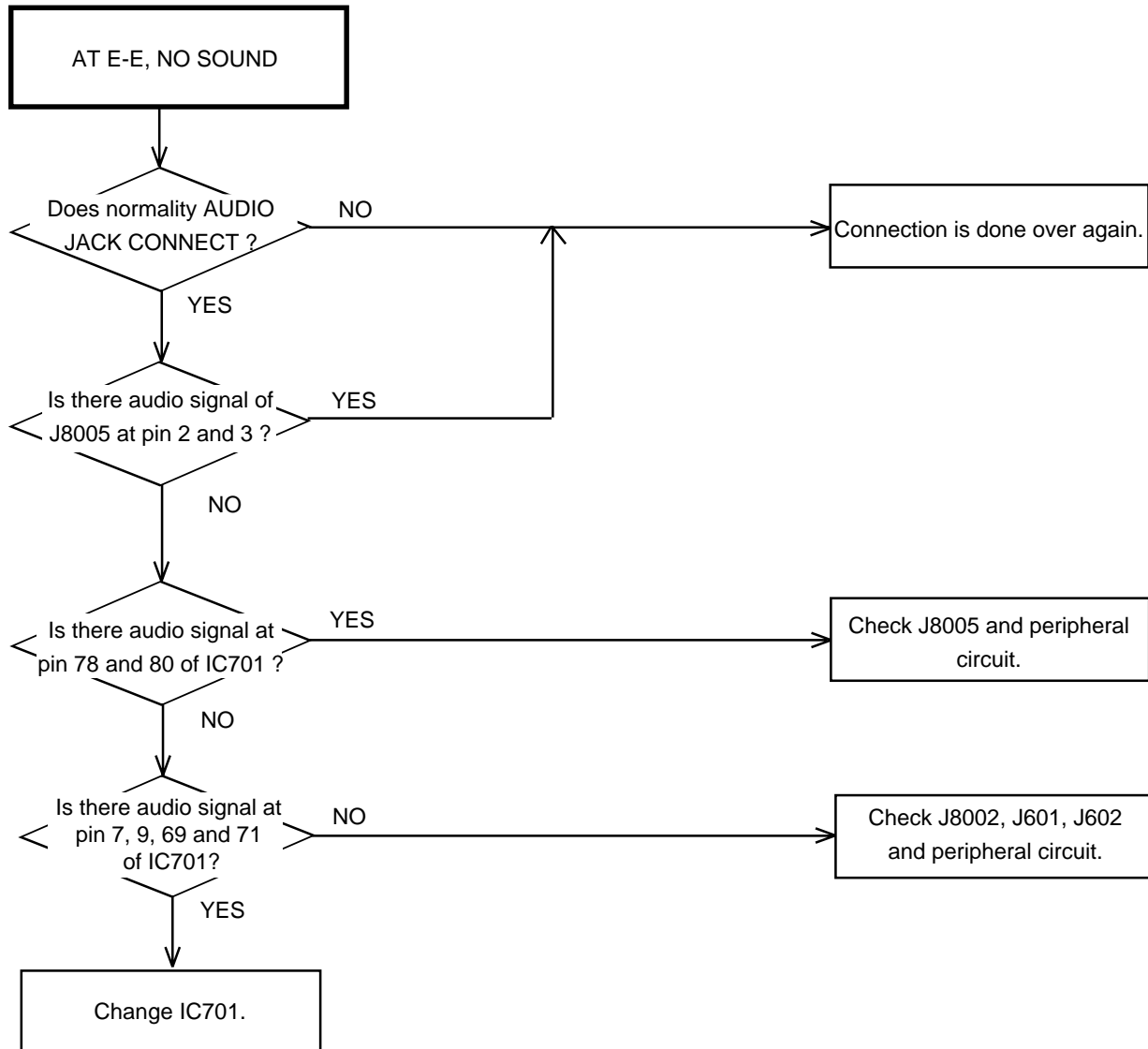
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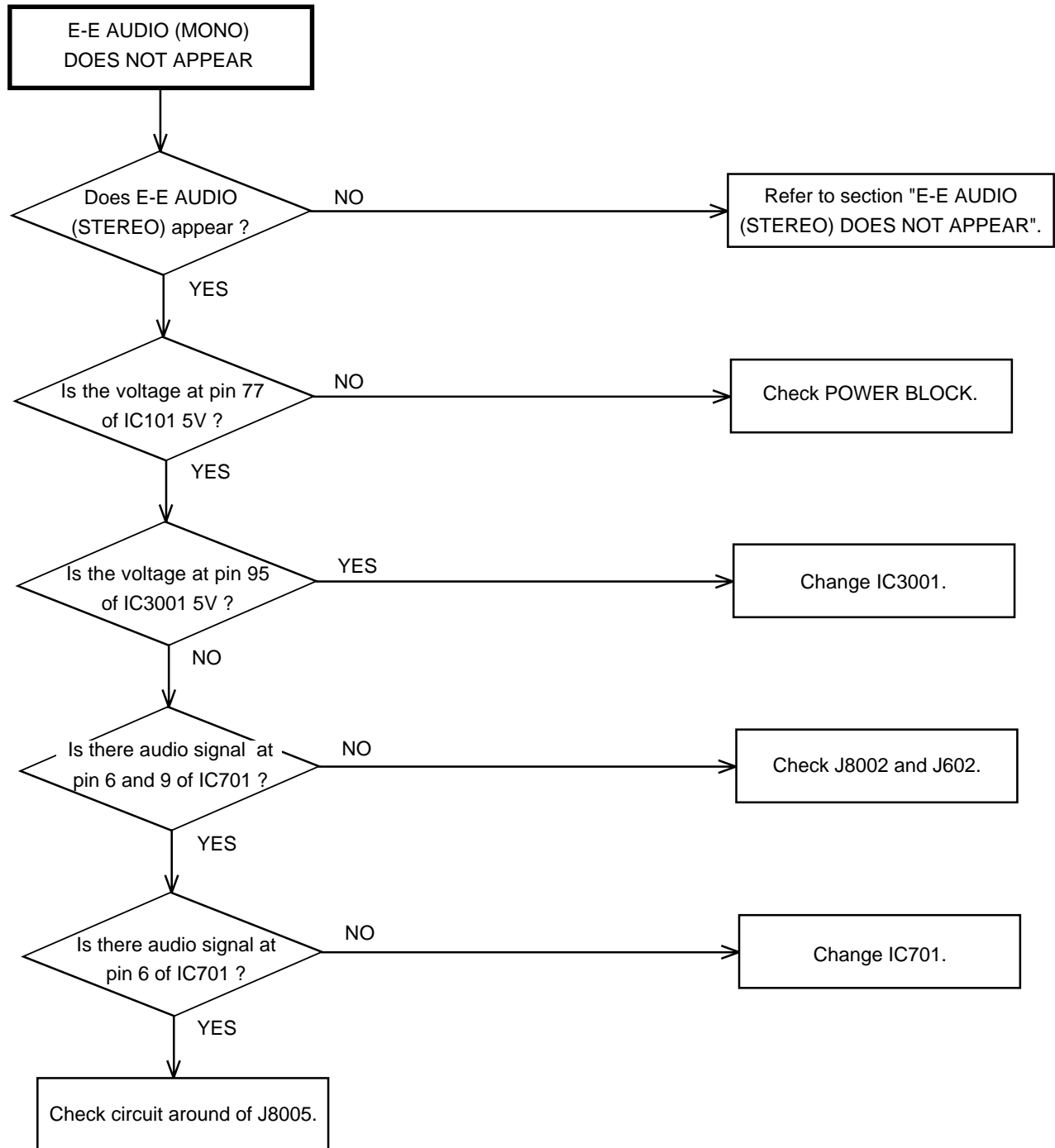
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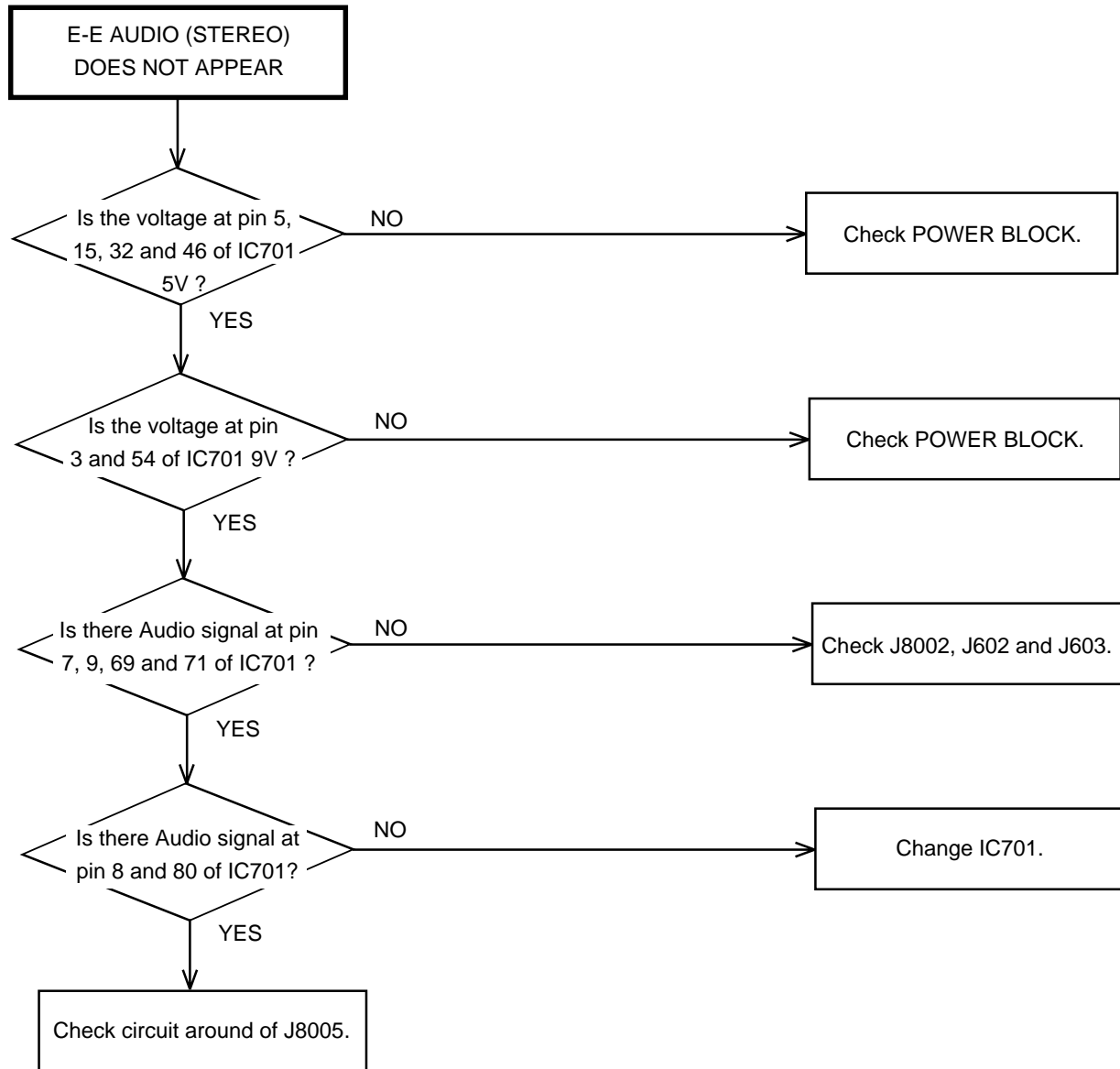
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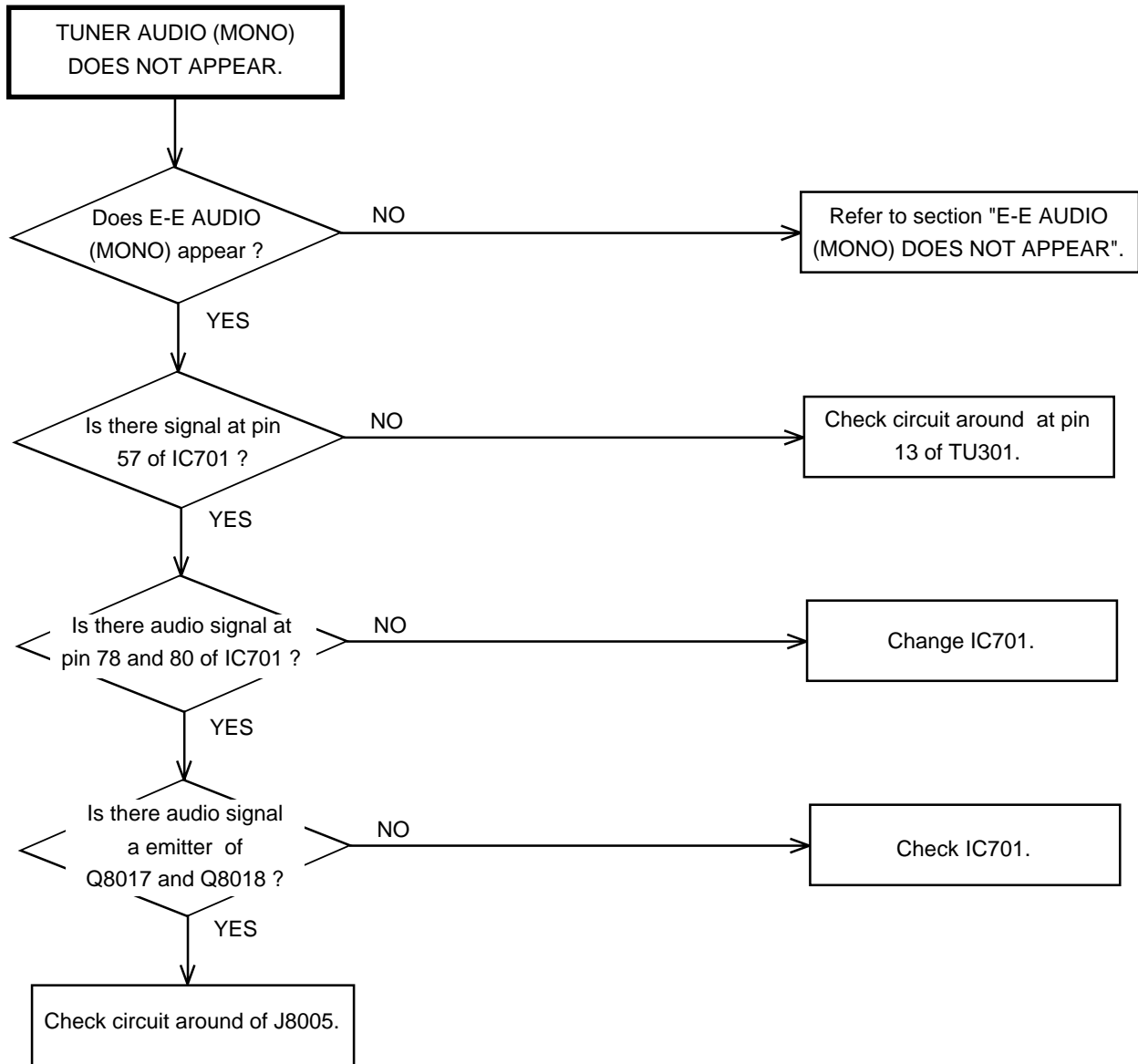
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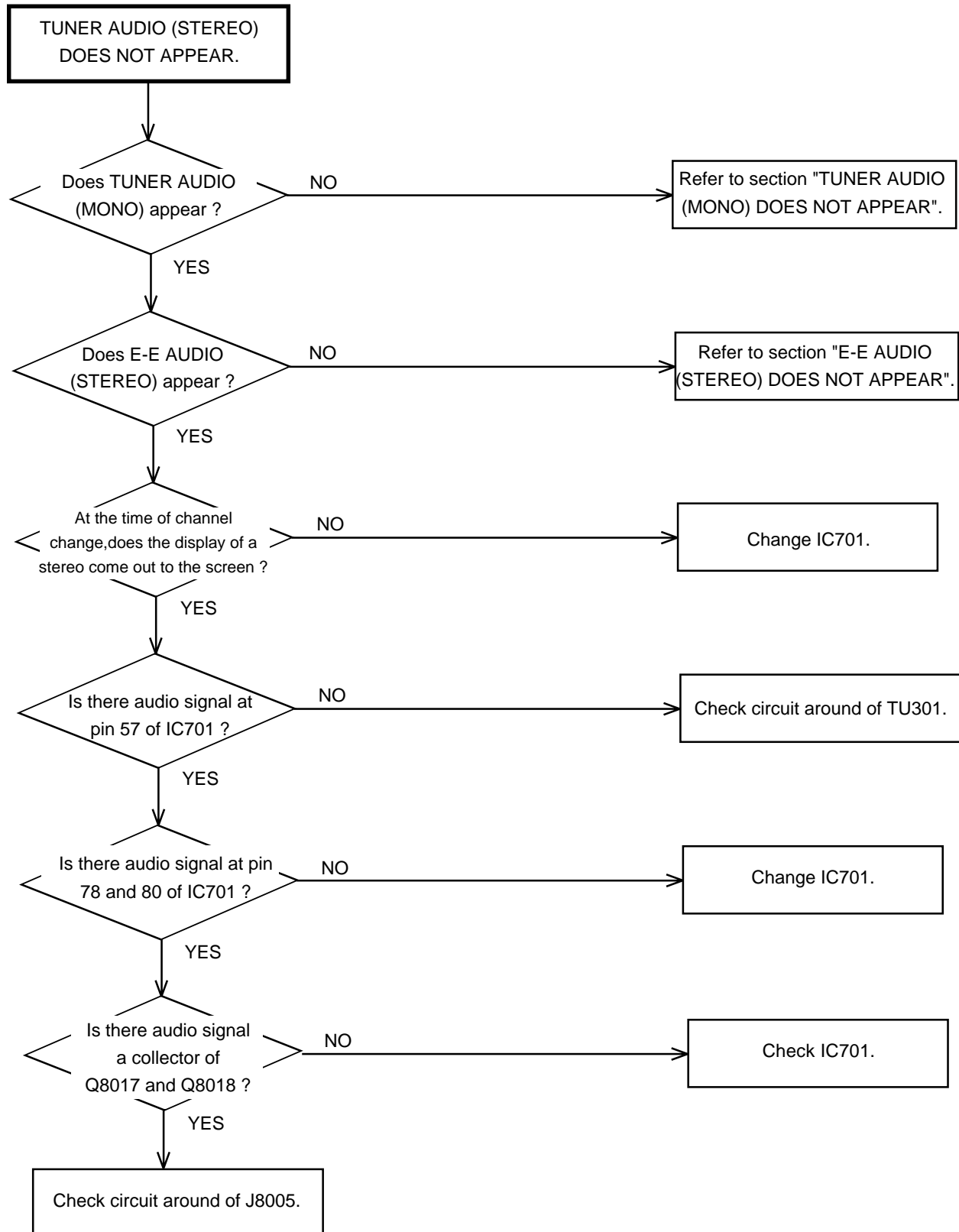
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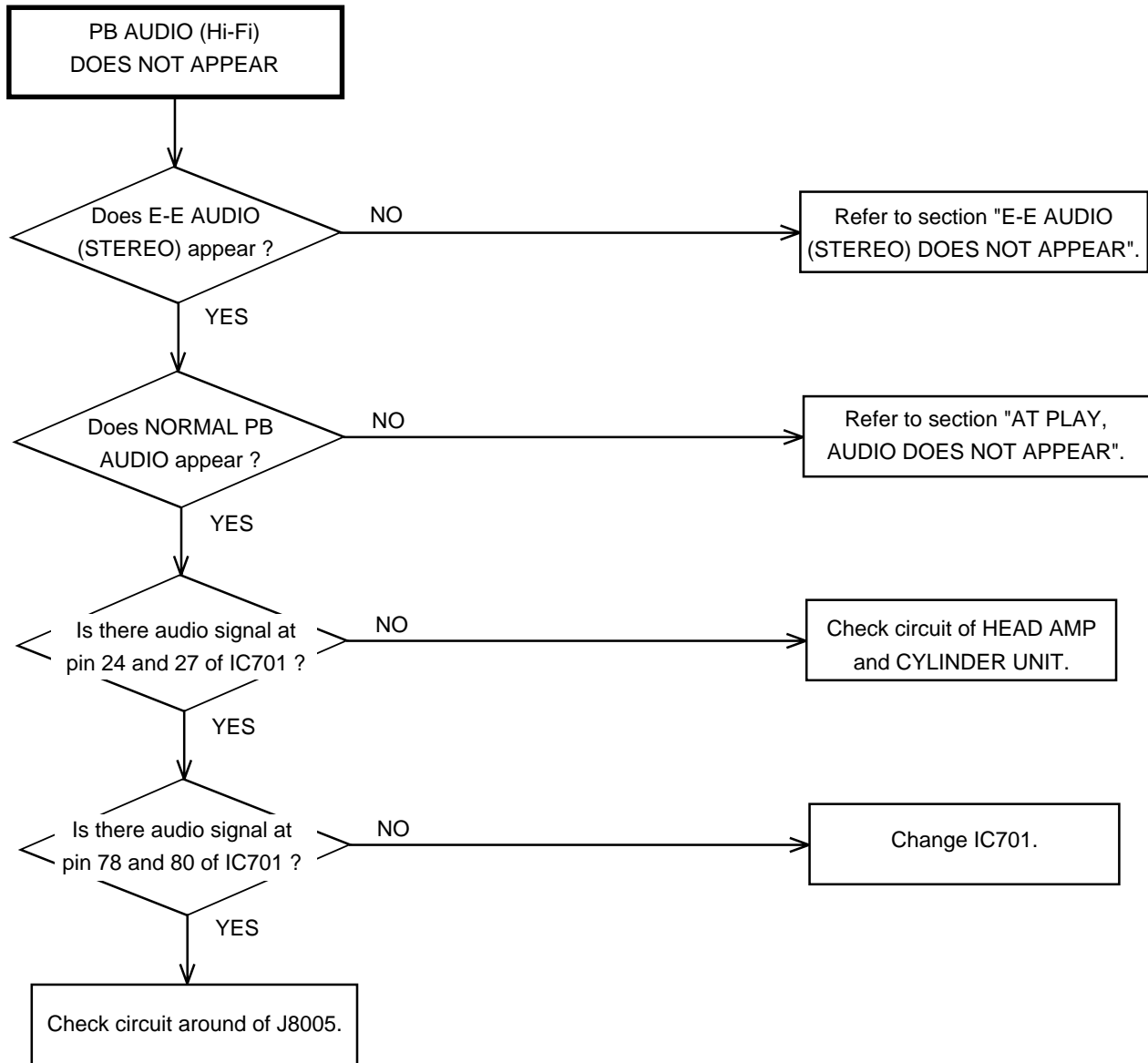
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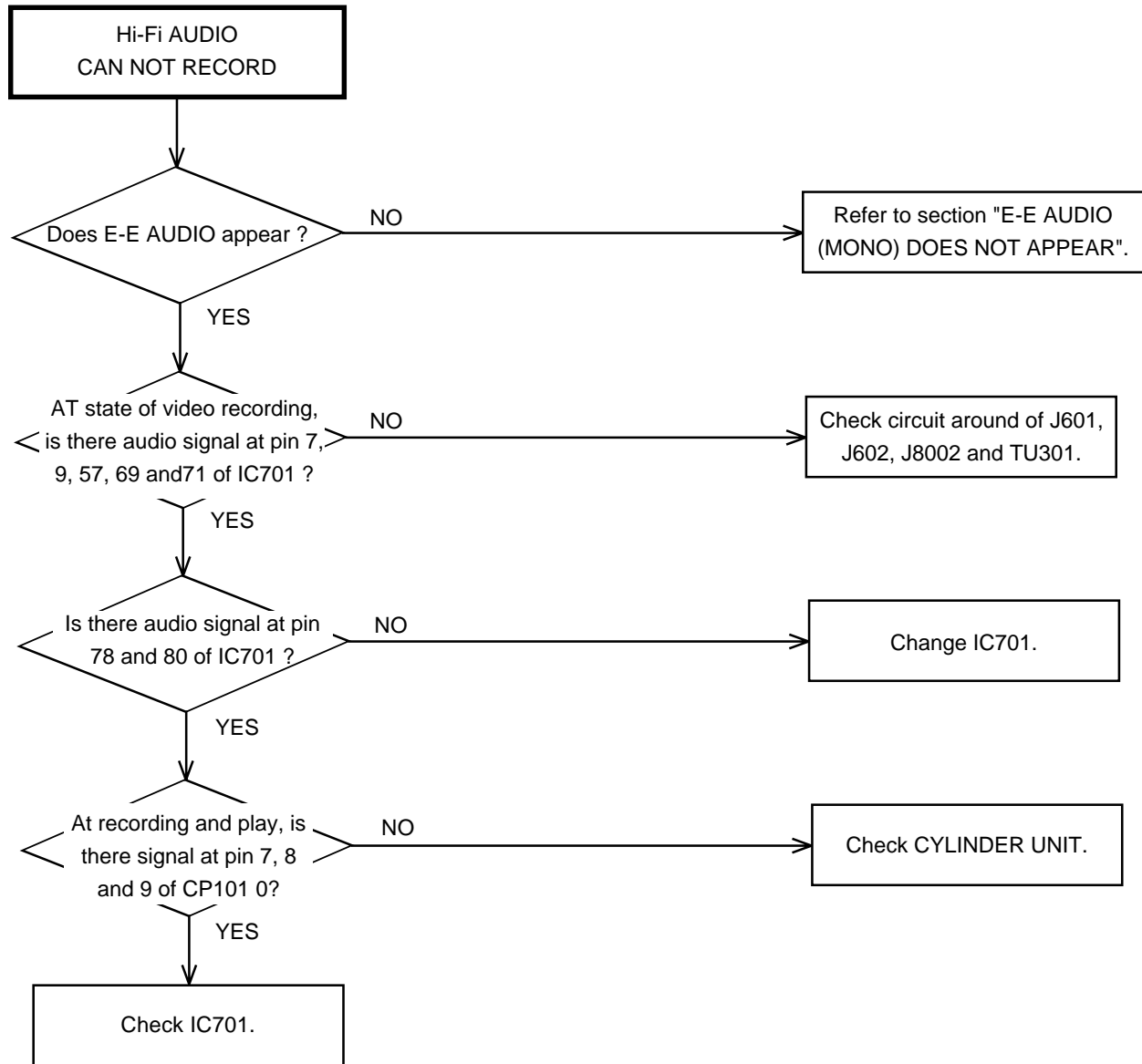
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TROUBLESHOOTING GUIDE

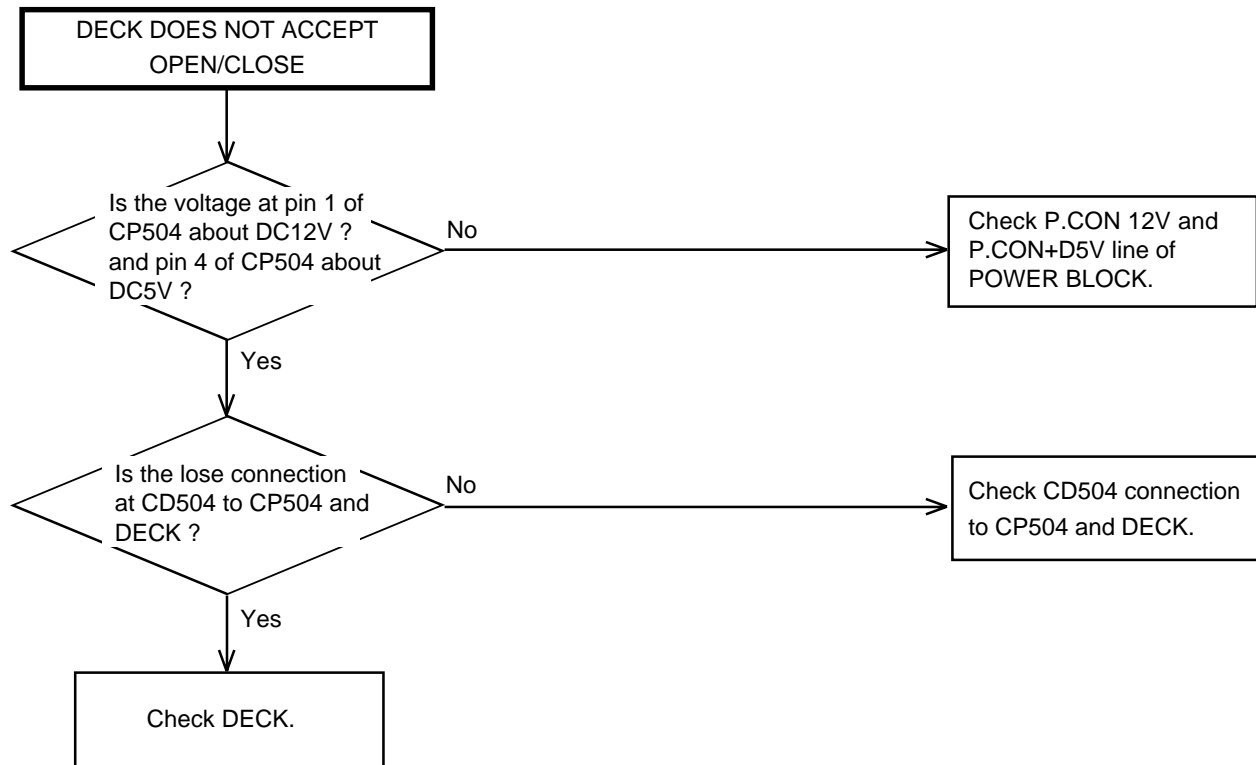


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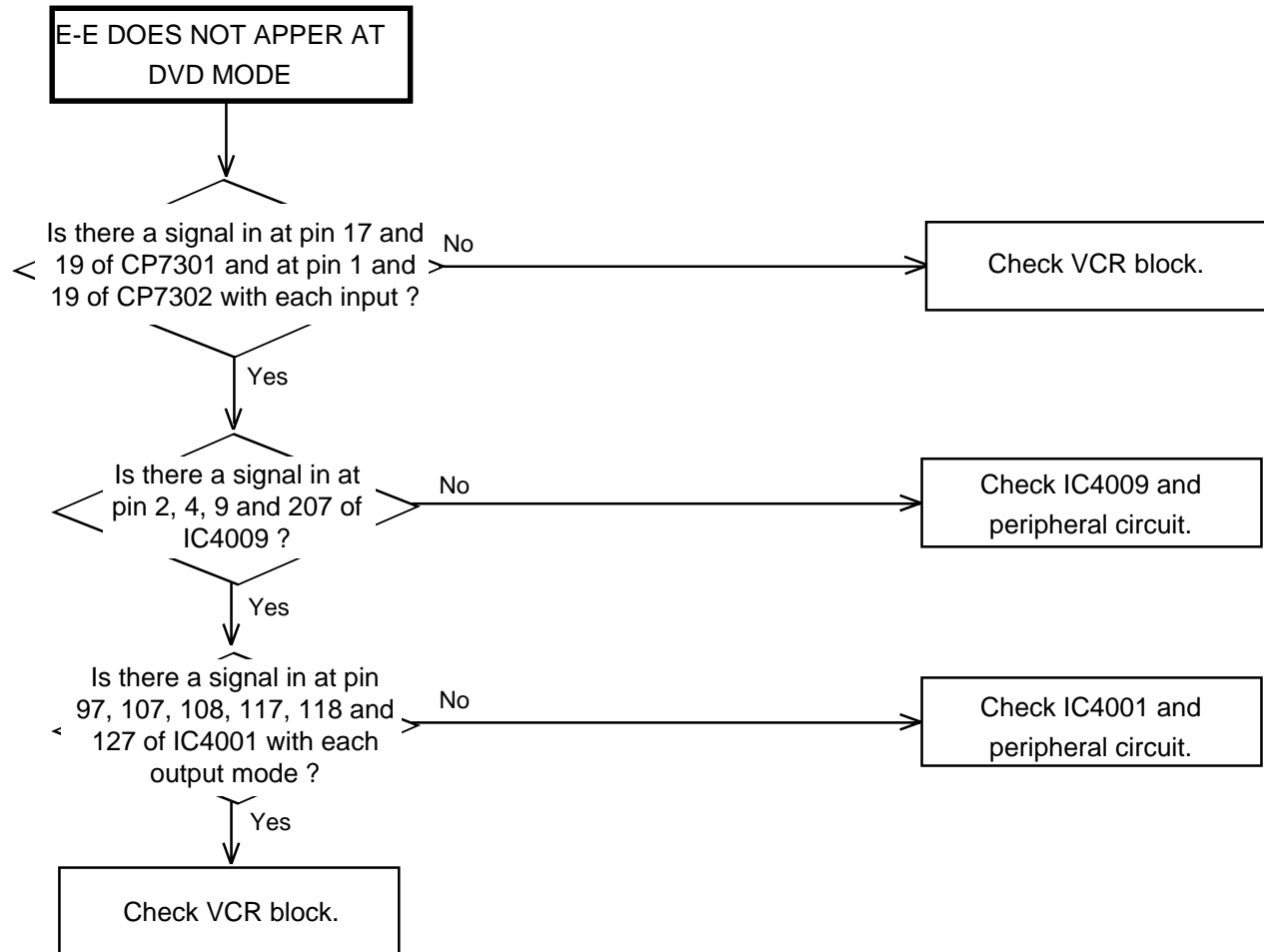


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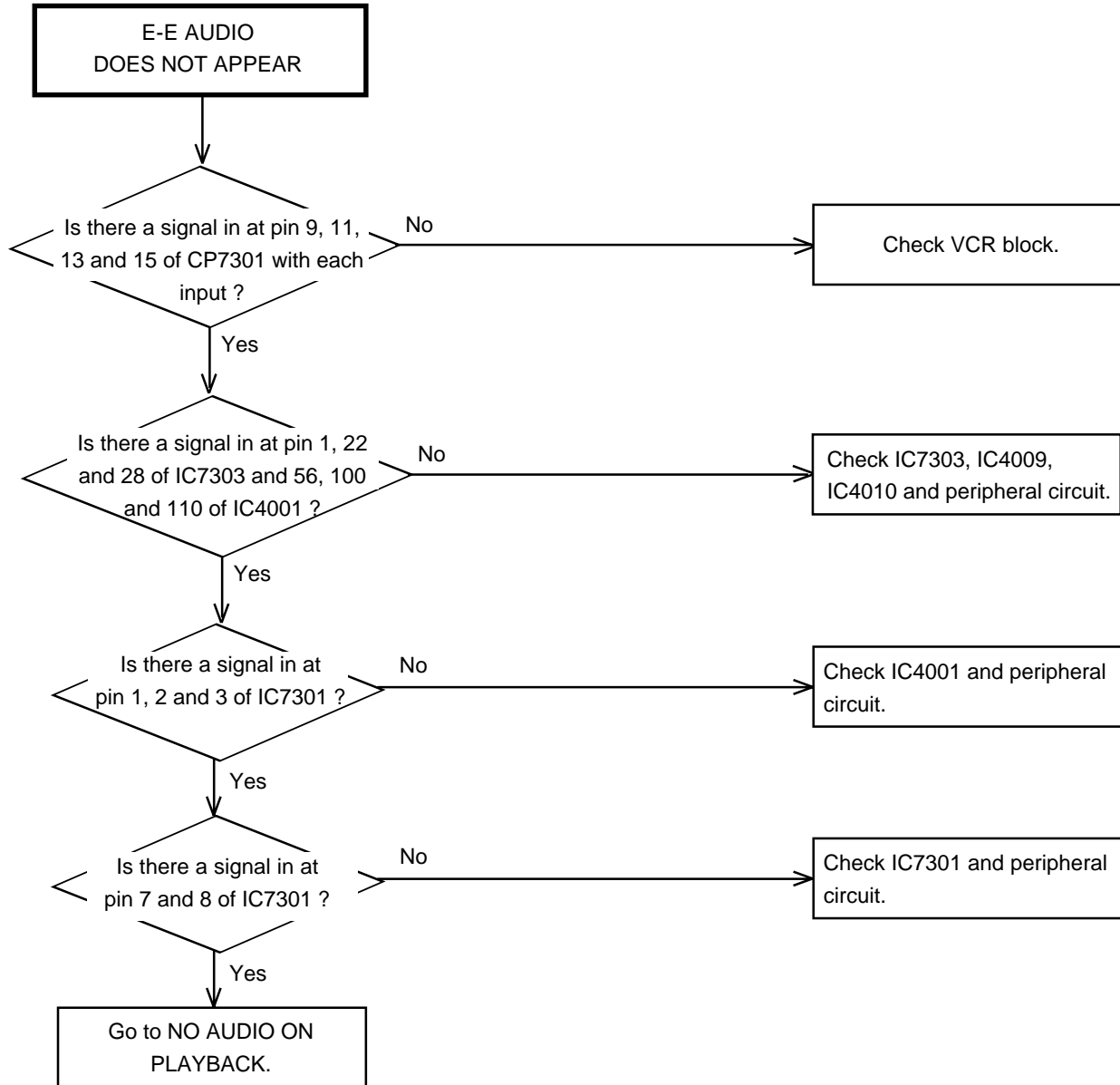
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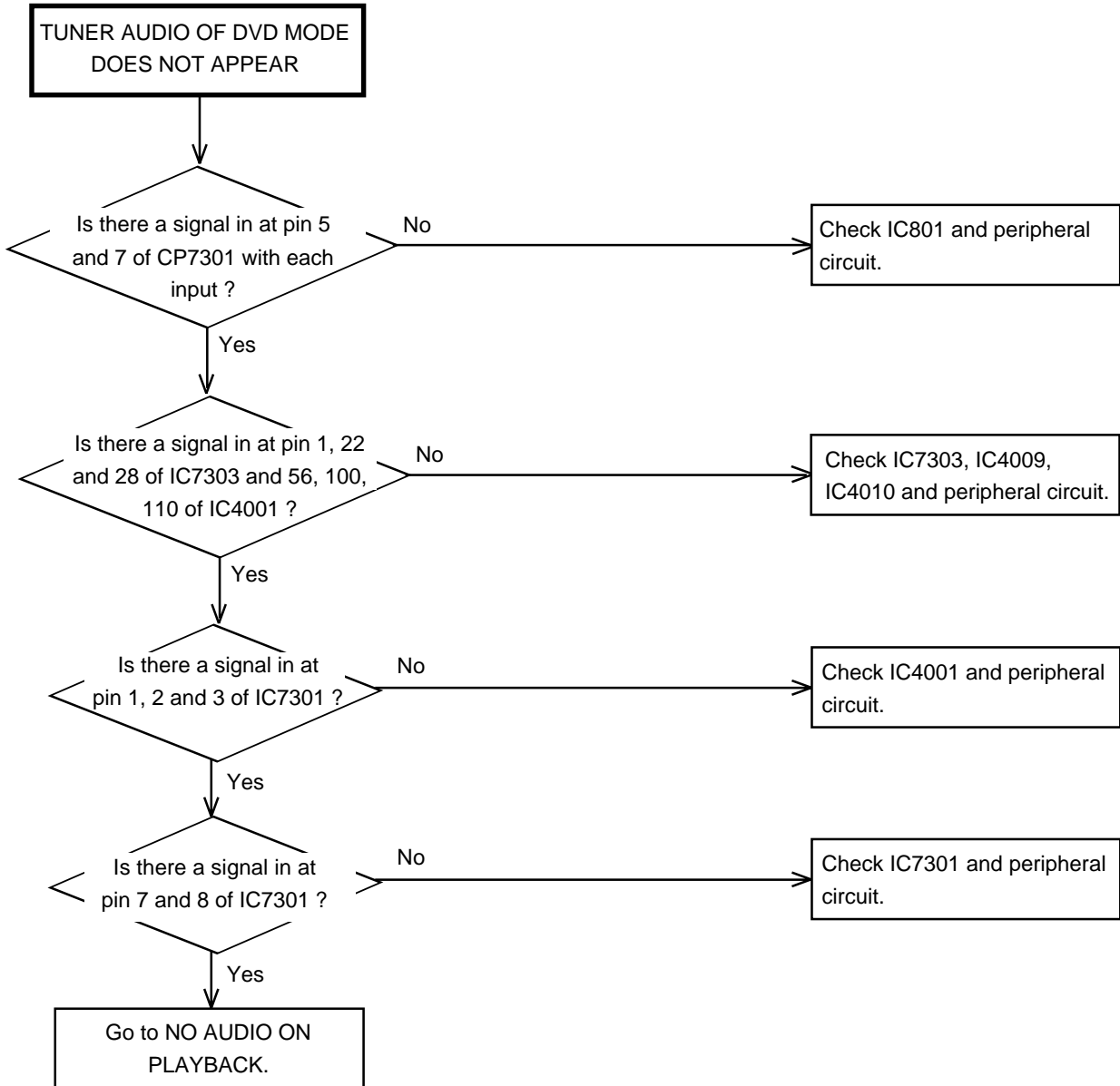
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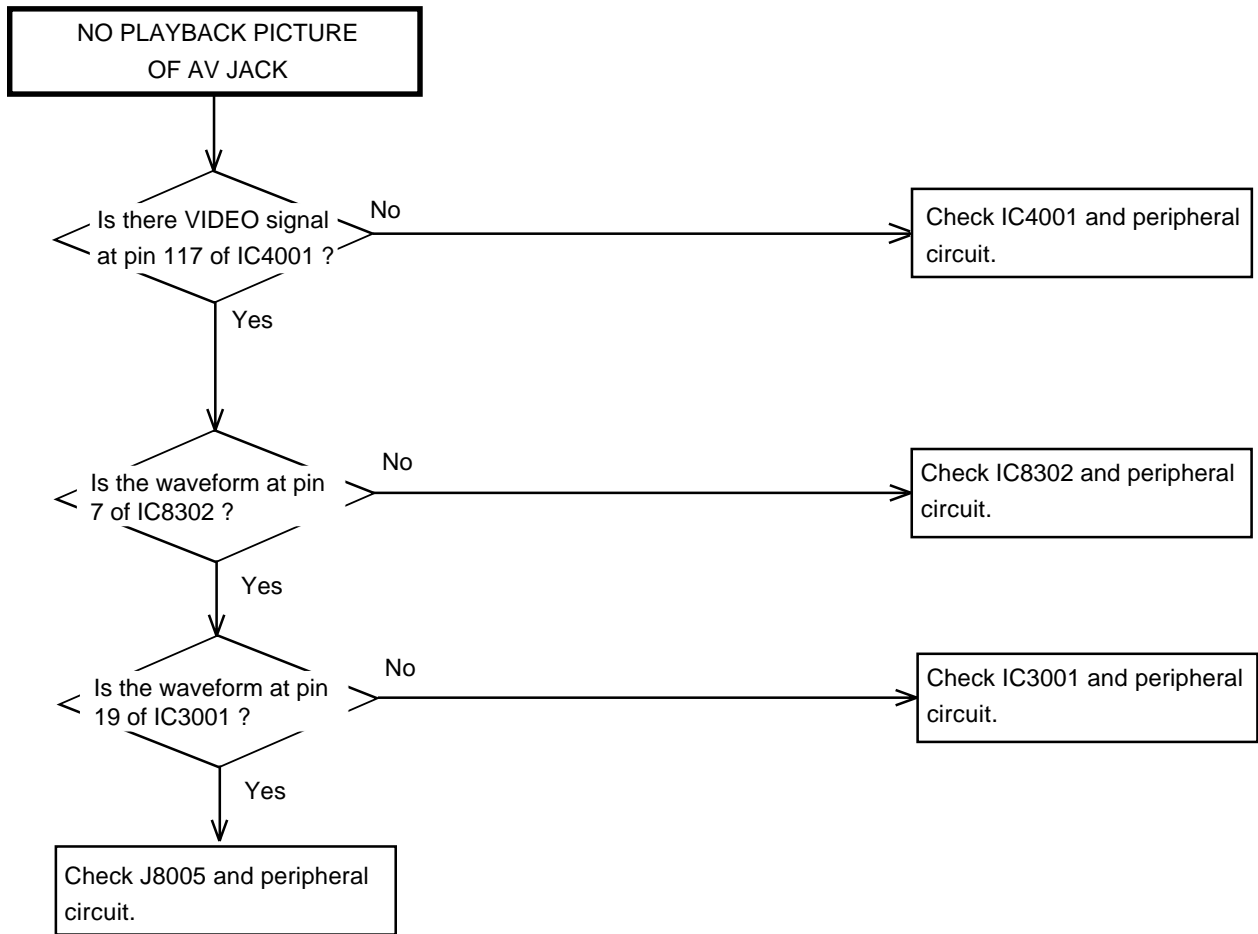
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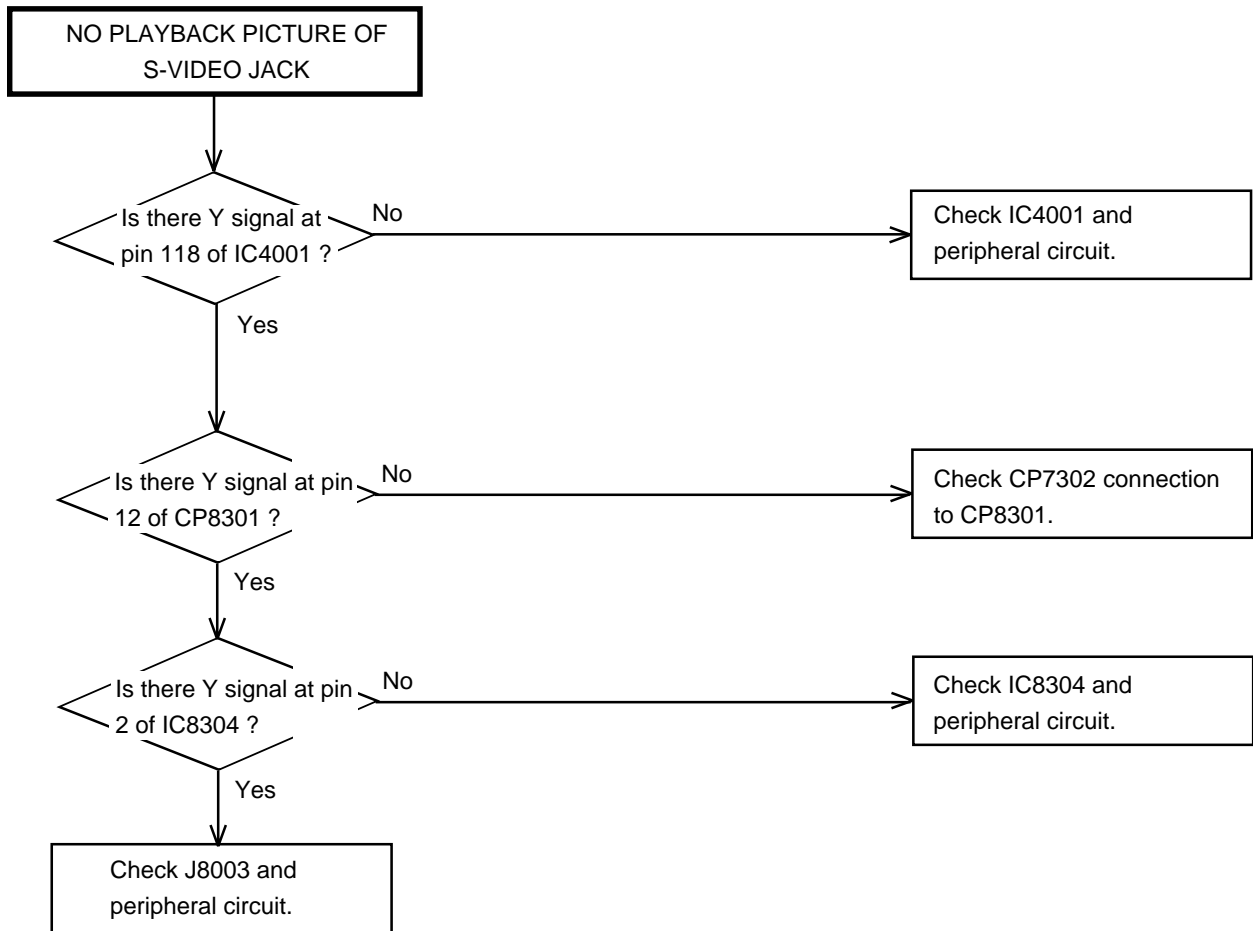
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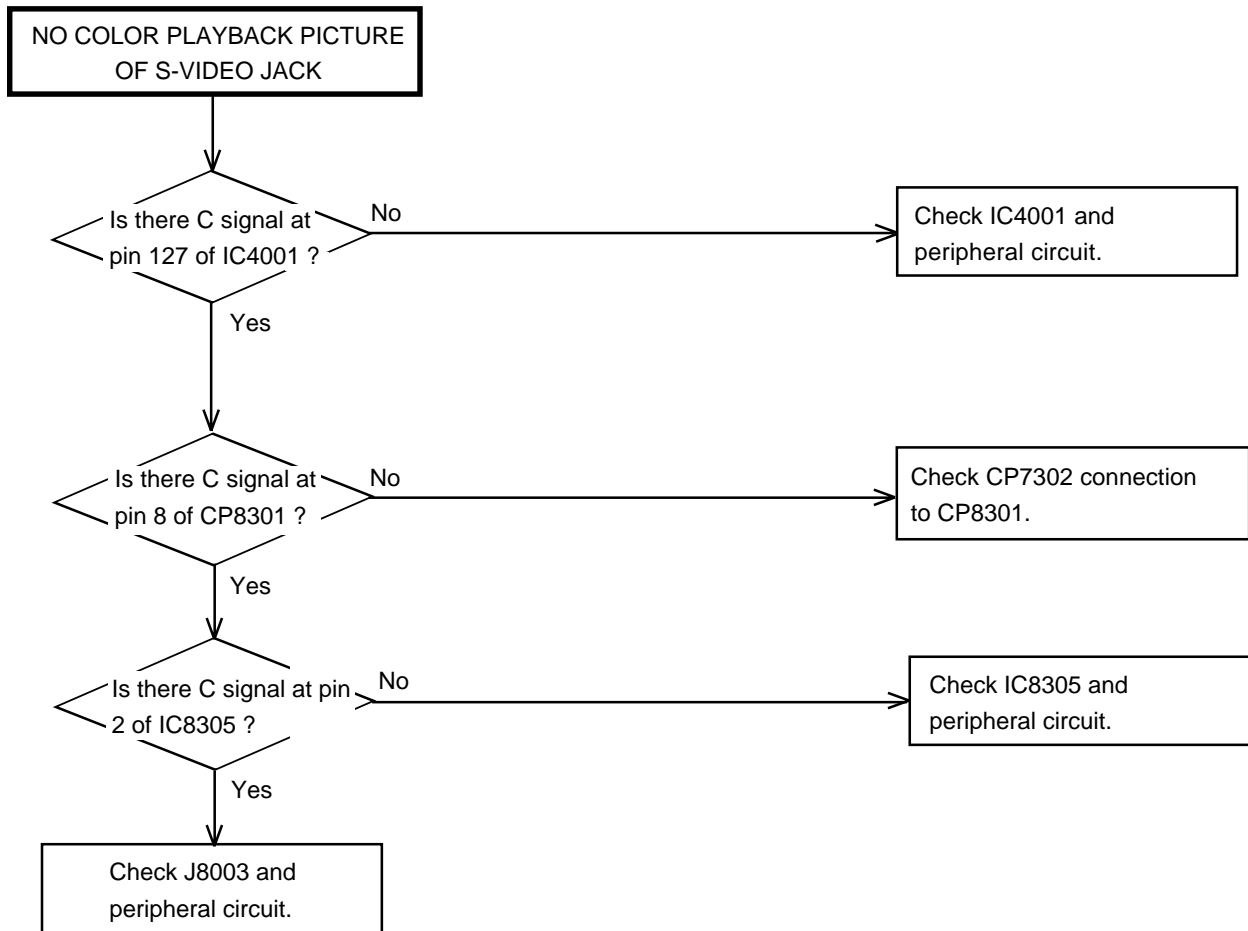
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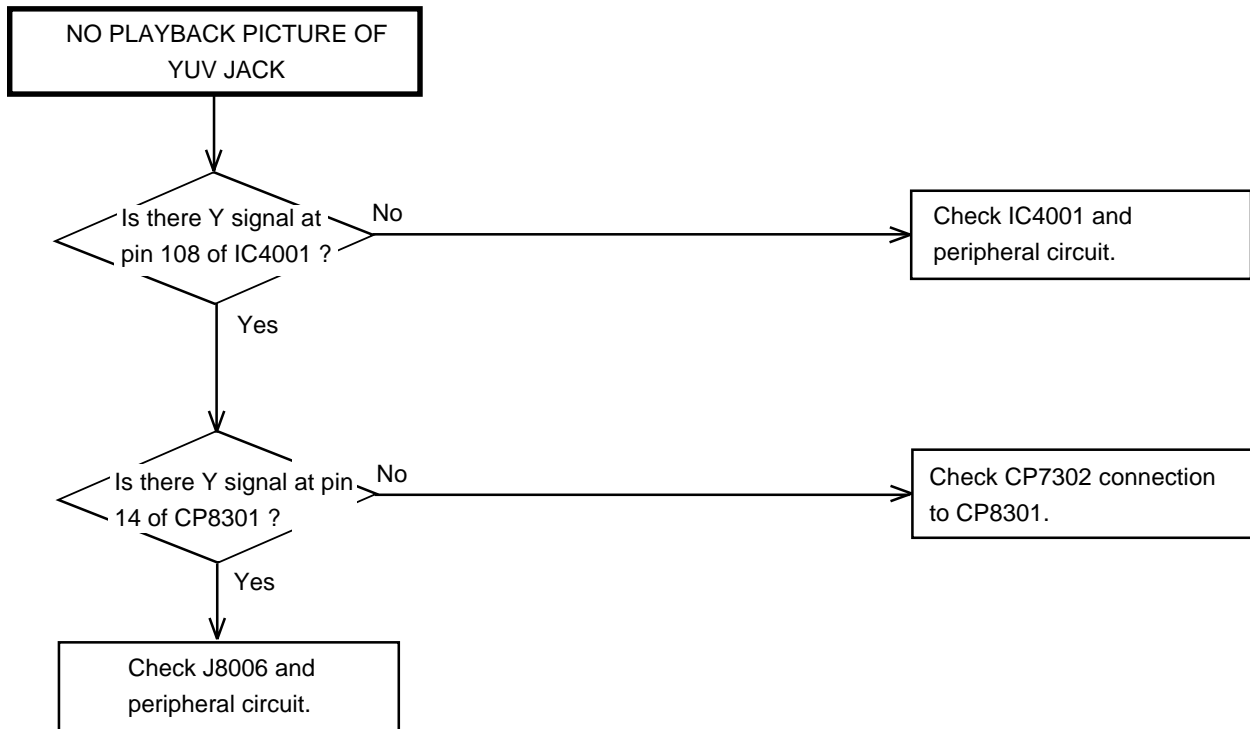
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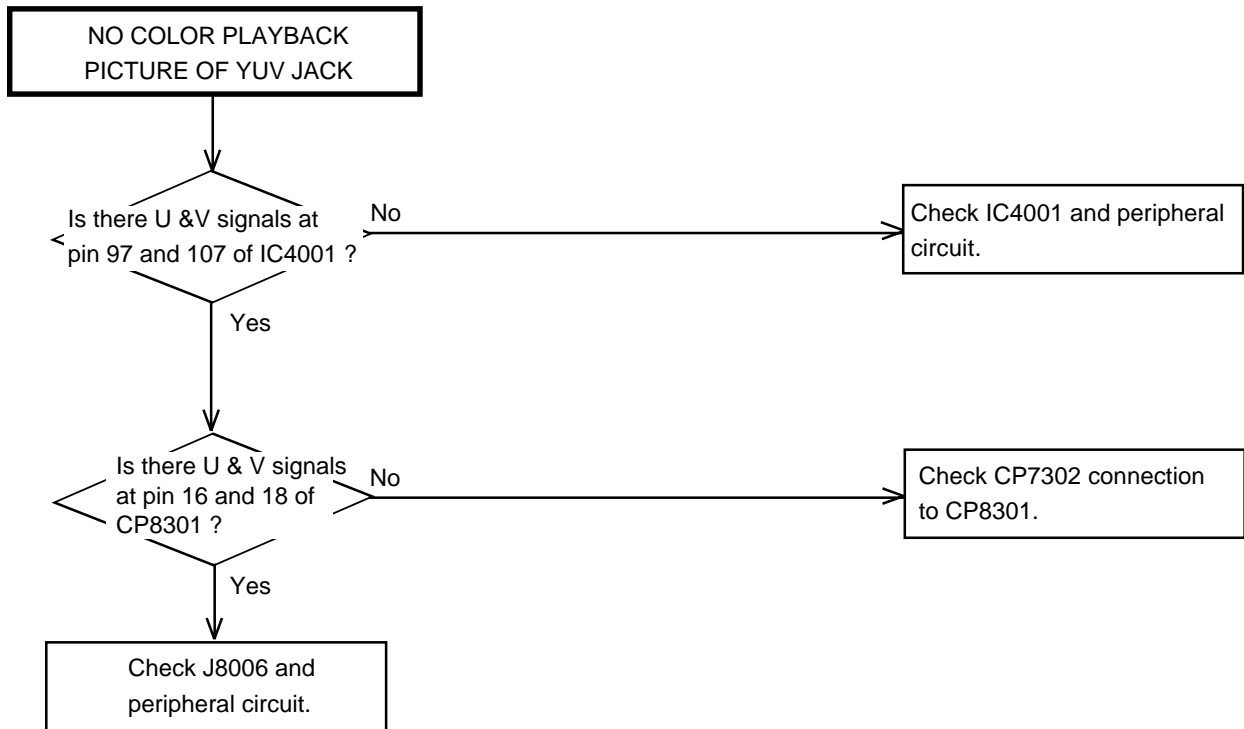
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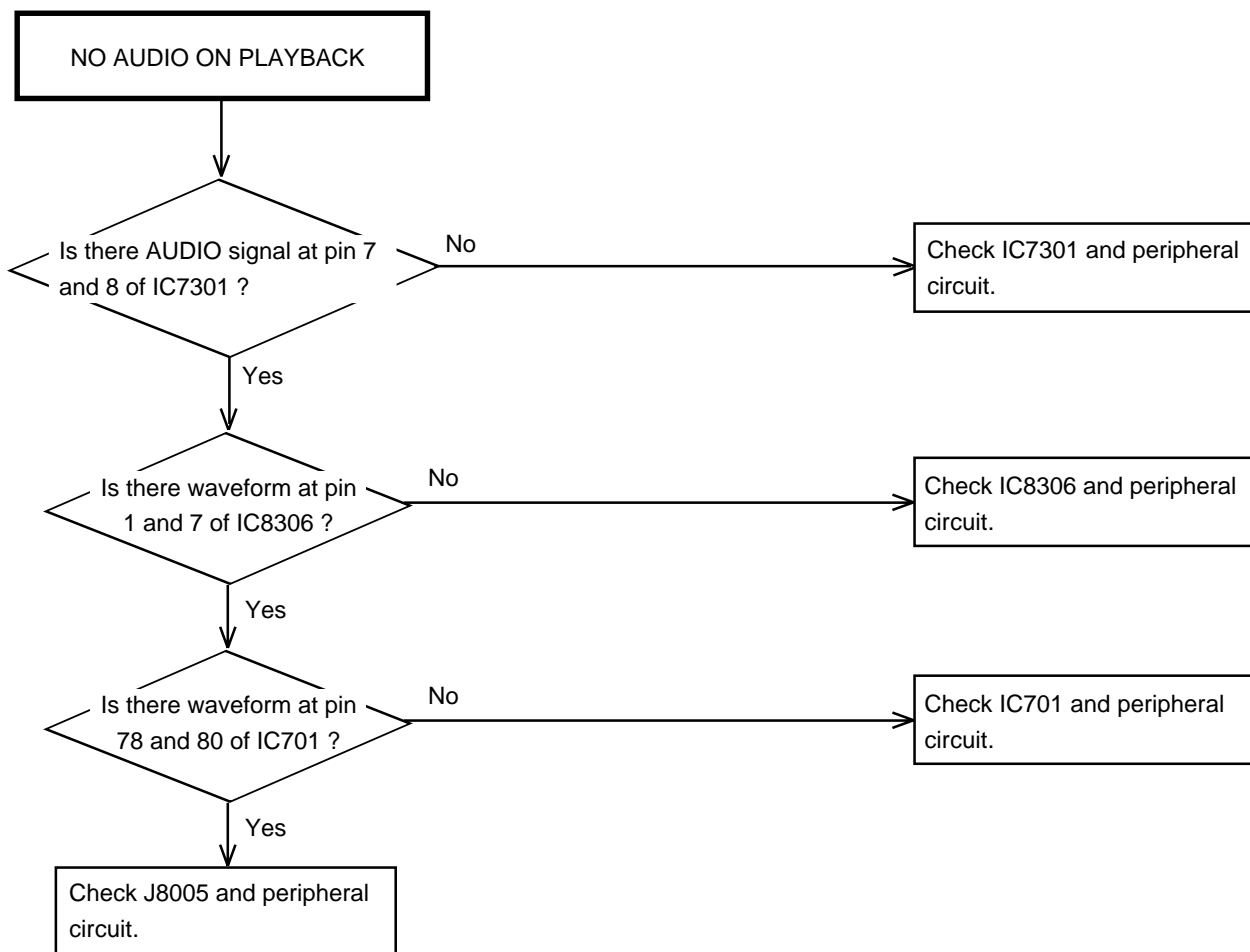
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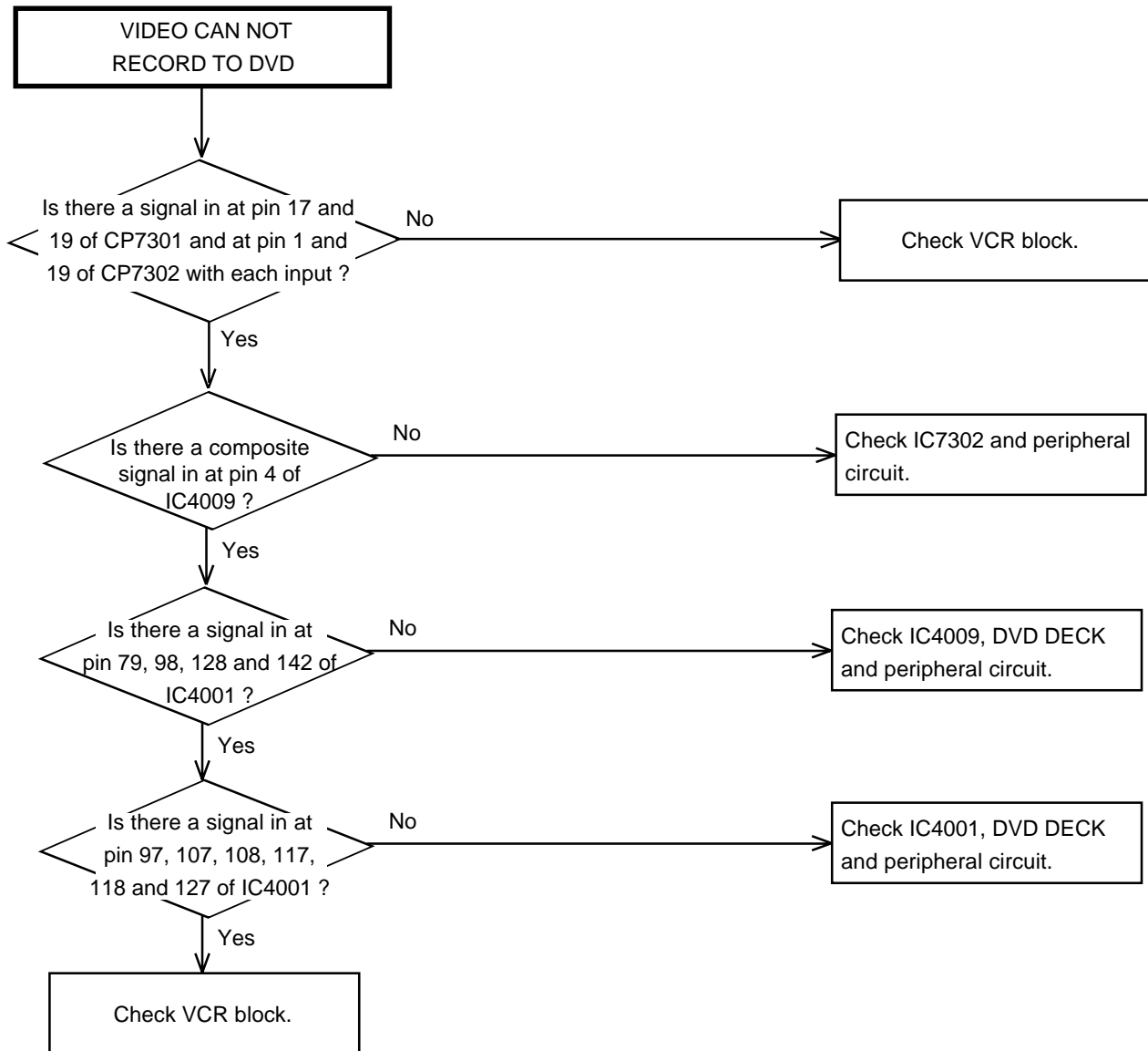
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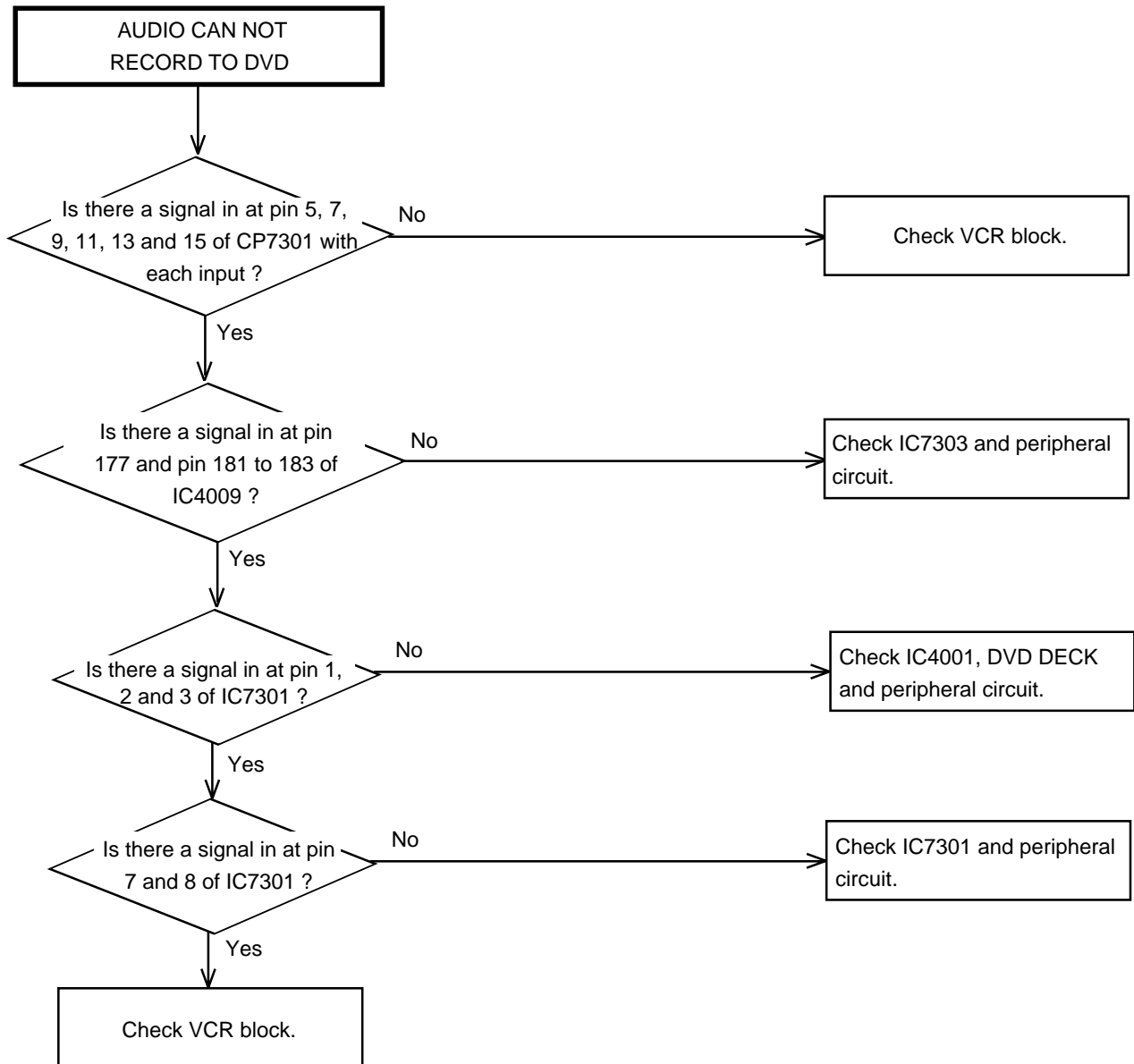
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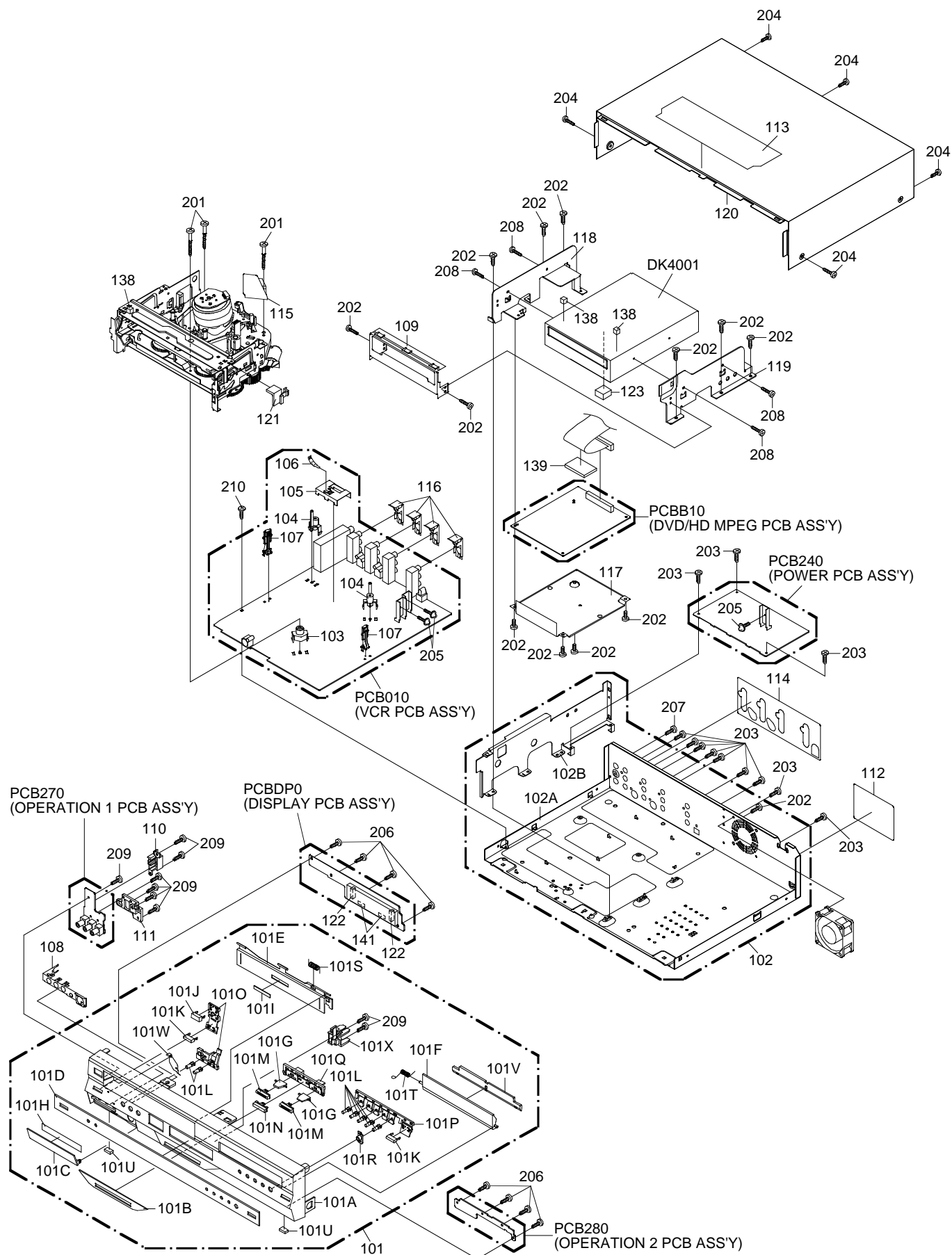
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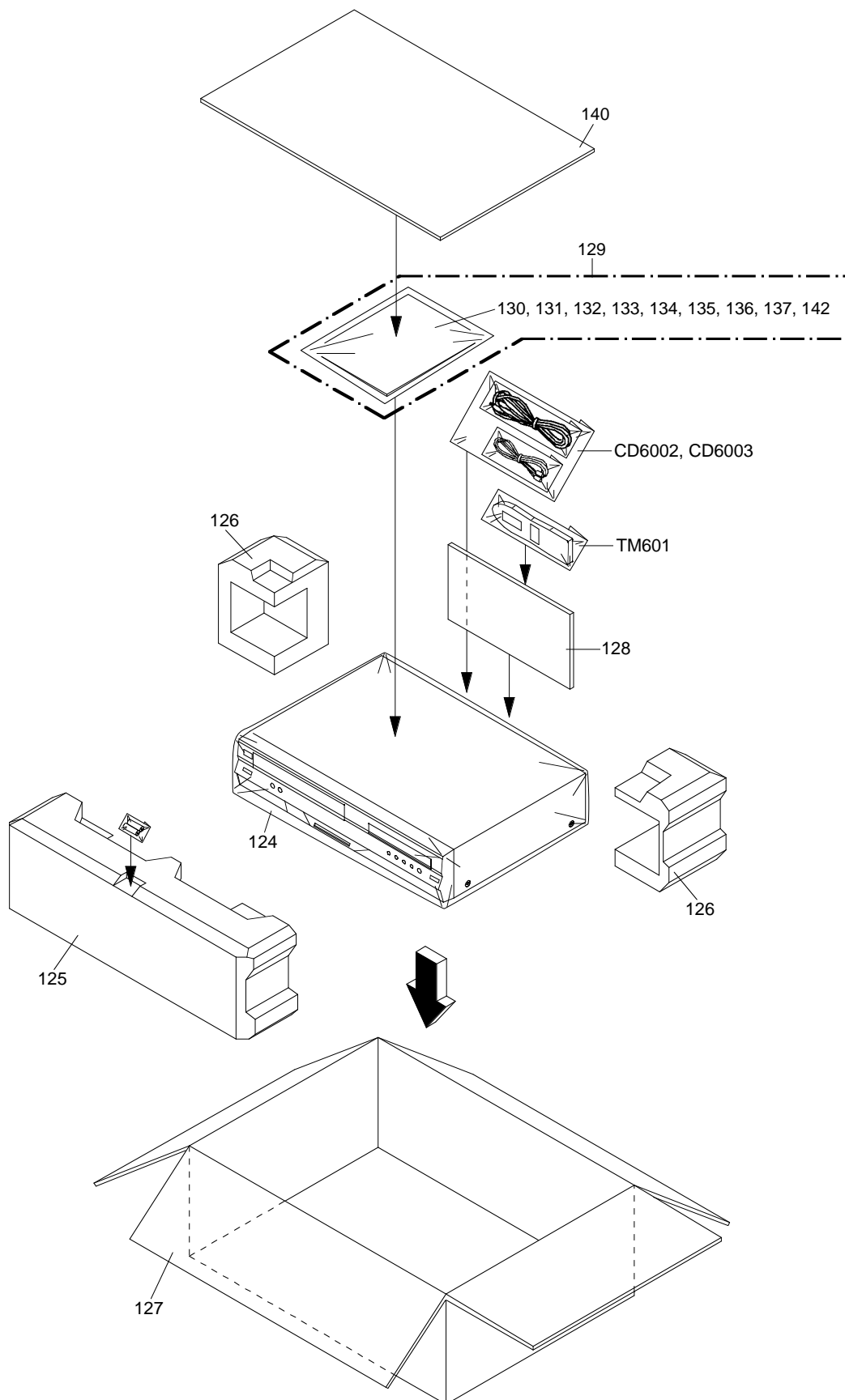
TROUBLESHOOTING GUIDE



MECHANICAL EXPLODED VIEW



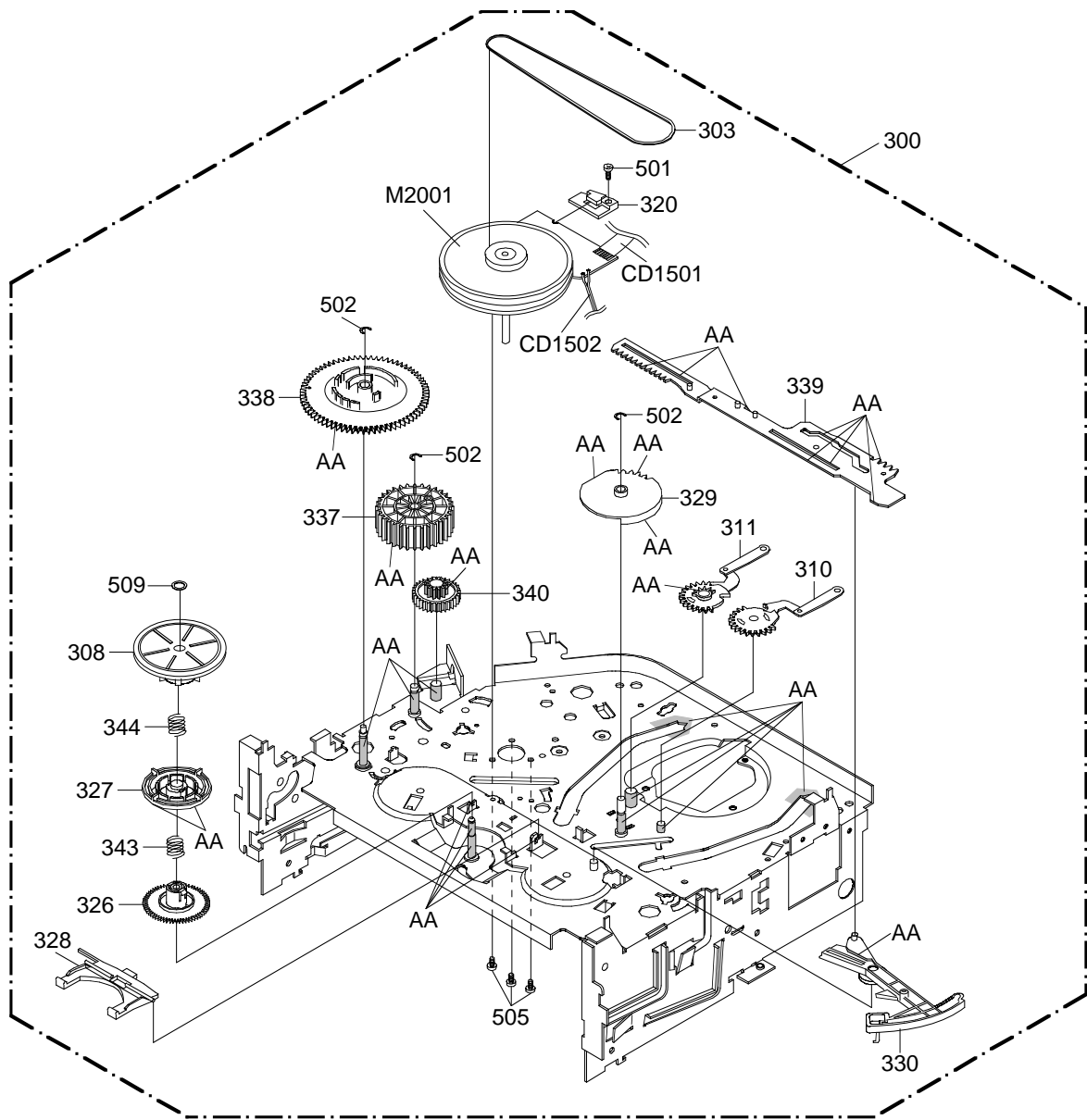
MECHANICAL EXPLODED VIEW (PACKING DIAGRAM)



[illegible]

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	MARK
GREASE	AA

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	AE006631	7A7010087A	FRONT CABI ASS'Y	
101A	AE006632	701WPJ1326	CABINET,FRONT	
101B	AE006633	711WAD0001	PLATE	
101C	AE006634	711WPB0012	DOOR	
101D	AE006635	711WPD0672	PLATE,DISPLAY	
101E	AE006636	712WPJ0905	FLAP,VCR	
101F	AE006637	712WPJ0906	FLAP,DVD	
101G	AE006638	713WPA0358	GLASS,LED	
101H	AE007244	7230007966	AV LABEL	
101I	AE001847	7235490018	BADGE,BRAND	
101J	AE006640	737WPE0025	BUTTON,CAP 1	
101K	AE006641	737WPE0026	BUTTON,CAP 2	
101L	AE006642	737WPE0027	BUTTON,CAP 3	
101M	AE006643	737WPE0028	BUTTON,CAP 4	
101N	AE006644	737WPE0029	BUTTON,CAP 5	
101O	AE006645	738WPA0143	BUTTON,FRAME 1	
101P	AE006646	738WPA0144	BUTTON,FRAME 2	
101Q	AE006647	738WPA0145	BUTTON,FRAME 3	
101R	AE006648	738WPA0146	BUTTON,RING	
101S	BZ710758	743WKA0039	SPRING,FLAP	
101T	AE007245	743WKA0054	SPRING,FLAP-DVD	
101U	BZ710573	800WFA0045	CUSHION,LEG	
101V	AE007055	713WPA0370	COVER,FLAP	
101W	AE007056	752WUA0012	SPRING,EARTH DISPLAY	
101X	AE006655	761WPA0375	HOLDER,DVD	
102	AE006649	7G7610011A	BOTTOM CABI ASS'Y	
102A	AE006650	761WSA0227	ANGLE,CENTER	
102B	AE006651	761WSA0231	PLATE,BOTTOM	
103	AE006652	701WPA1363	HOLDER,DECK	
104	AE006653	701WPA1364	HOLDER,DECK	
105	BZ710466	752WSA0230	SHIELD,CASE HEAD AMP	
106	BZ710331	753WUA0006	SPRING,EARTH HEAD AMP	
107	BZ710498	85OP700038	HOLDER,END SENSOR	
108	AE006654	752WUA0009	SHIELD,JACK	
109	AE006958	752WSA0484	SHIELD,DECK	
110	AE006656	761WPA0376	HOLDER,DECK(L)	
111	AE006657	761WPA0377	HOLDER,PCB	
112	AE007246	7225490204	SHEET,RATING	
113	AE007247	7235490064	POP LABEL	
114	AE006660	7230007927	SHEET,JACK	
115	BZ710633	752WSA0275	COVER,AC HEAD	
116	BZ710659	752WSA0290	SHIELD,COMPO	
117	AE006661	752WSA0391	SHIELD,MPEG	
118	AE006662	761WSA0228	ANGLE,DVD(L)	
119	AE006663	761WSA0229	ANGLE,DVD(R)	
120	AE006664	702WSB0113	CABINET,TOP	
121	AE006665	761WPA0384	HOLDER,TOP	
122	AE006666	800WR00074	CUSHION	4x15xT5
123	AE005385	8965TS1015	CUSHION 65TS10-5	10x5x15
124	AD301577	791WHA0100	GIFT SHEET	
125	AE006667	792WHA0589	PACKAGE,FRONT	
126	AE007248	792WHAA173	PACKAGE,BACK	
127	AE007060	793WCD1650	GIFT BOX	
128	AE001856	795WCA0662	PAD,DVD/VR	155x250
129	AE006670	A2G101H975	INSTRUCTION BOOK KIT	
130	AE005531	JB5KD600	POLYBAG,INSTRUCTION(RED CAUTION)	
131	AE004983	J2D60117A	REGISTRATION CARD	
132	AE004982	J2D60129A	INFORMATION SHEET	
133	AE004980	J2D60143A	NETFLIX CARD	
134	AE005534	J2E50628A	WARNING SHEET	
135	AE006671	J2G10101A	INSTRUCTION BOOK	
136	AE006672	J2G10107A	QUICK SET-UP SHEET	
137	AE007249	J2G10199B	INFORMATION SHEET	
138	AE001853	8965TS1017	CUSHION 65TS10-10	17.5x20x14
139	AE007250	800WFA0056	CUSHION	25x50xT4
140	AE007251	795WCAA322	PAD(M2G1)	
141	AE007252	7250000598	SHEET,PC	

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
201	AE006673	8109130B7U	SCREW,TAP TITE(B) R PAN	3x27
202	AE005474	810923070U	SCREW,TAP TITE(B) R BIND	3x7
203	AE003526	810923080U	SCREW,TAP TITE(B) BIND	3x8
204	AE004724	8109K3060U	SCREW,TAP TITE(B) BIND(3D)	3x6
205	AE003524	8109I30A0U	SCREW,TAP TITE(B) WH7	3x10
206	AE005538	8110326A0U	SCREW,TAP TITE(P) FLAT	2.6x10
207	AE003532	810723040U	SCREW,TAP TITE(S) BIND	3x4
208	AE006674	810223060U	SCREW,BIND	
209	AE003530	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
210	AE007202	810923053U	SCREW,TAP TITE(B) R BIND	3x5.3

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	AE006631	7A7010087A	FRONT CABI ASS'Y	
101A	AE006632	701WPJ1326	CABINET,FRONT	
101B	AE006633	711WAD0001	PLATE	
101C	AE006634	711WPB0012	DOOR	
101D	AE006635	711WPD0672	PLATE,DISPLAY	
101E	AE006636	712WPJ0905	FLAP,VCR	
101F	AE006637	712WPJ0906	FLAP,DVD	
101G	AE006638	713WPA0358	GLASS,LED	
101H	AE007244	7230007966	AV LABEL	
101I	AE001847	7235490018	BADGE,BRAND	
101J	AE006640	737WPE0025	BUTTON,CAP 1	
101K	AE006641	737WPE0026	BUTTON,CAP 2	
101L	AE006642	737WPE0027	BUTTON,CAP 3	
101M	AE006643	737WPE0028	BUTTON,CAP 4	
101N	AE006644	737WPE0029	BUTTON,CAP 5	
101O	AE006645	738WPA0143	BUTTON,FRAME 1	
101P	AE006646	738WPA0144	BUTTON,FRAME 2	
101Q	AE006647	738WPA0145	BUTTON,FRAME 3	
101R	AE006648	738WPA0146	BUTTON,RING	
101S	BZ710758	743WKA0039	SPRING,FLAP	
101T	AE007245	743WKA0054	SPRING,FLAP-DVD	
101U	BZ710573	800WFA0045	CUSHION,LEG	
101V	AE007055	713WPA0370	COVER,FLAP	
101W	AE007056	752WUA0012	SPRING,EARTH DISPLAY	
101X	AE006655	761WPA0375	HOLDER,DVD	
102	AE006649	7G7610011A	BOTTOM CABI ASS'Y	
102A	AE006650	761WSA0227	ANGLE,CENTER	
102B	AE006651	761WSA0231	PLATE,BOTTOM	
103	AE006652	701WPA1363	HOLDER,DECK	
104	AE006653	701WPA1364	HOLDER,DECK	
105	BZ710466	752WSA0230	SHIELD,CASE HEAD AMP	
106	BZ710331	753WUAA006	SPRING,EARTH HEAD AMP	
107	BZ710498	85OP700038	HOLDER,END SENSOR	
108	AE006654	752WUA0009	SHIELD,JACK	
109	AE006958	752WSA0484	SHIELD,DECK	
110	AE006656	761WPA0376	HOLDER,DECK(L)	
111	AE006657	761WPA0377	HOLDER,PCB	
112	AE007253	722549A486	SHEET,RATING	
113	AE007247	7235490064	POP LABEL	
114	AE006660	7230007927	SHEET,JACK	
115	BZ710633	752WSA0275	COVER,AC HEAD	
116	BZ710659	752WSA0290	SHIELD,COMPO	
117	AE006661	752WSA0391	SHIELD,MPEG	
118	AE006662	761WSA0228	ANGLE,DVD(L)	
119	AE006663	761WSA0229	ANGLE,DVD(R)	
120	AE006664	702WSB0113	CABINET,TOP	
121	AE006665	761WPA0384	HOLDER,TOP	
122	AE006666	800WR00074	CUSHION	4x15xT5
123	AE005385	8965TS1015	CUSHION 65TS10-5	10x5x15
124	AD301577	791WHA0100	GIFT SHEET	
125	AE006667	792WHA0589	PACKAGE,FRONT	
126	AE007248	792WHAA173	PACKAGE,BACK	
127	AE007254	793WCD1661	GIFT BOX	
128	AE001856	795WCA0662	PAD,DVD/VR	155x250
129	AE007061	A2G103H975	INSTRUCTION BOOK KIT	
130	AE003958	JB5KD300	POLYBAG,INSTRUCTION(RED CAUTION)	
132	AE005543	J2E50729A	INFORMATION SHEET	
135	AE007255	J2G10301A	INSTRUCTION BOOK(E)	
138	AE001853	8965TS1017	CUSHION 65TS10-10	17.5x20x14
139	AE007250	800WFA0056	CUSHION	25x50xT4
140	AE007251	795WCAA322	PAD(M2G1)	
142	AE007256	J2G10310A	INSTRUCTION BOOK(F)	

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
201	AE006673	8109130B7U	SCREW,TAP TITE(B) R PAN	3x27
202	AE005474	810923070U	SCREW,TAP TITE(B) R BIND	3x7
203	AE003526	810923080U	SCREW,TAP TITE(B) BIND	3x8
204	AE004724	8109K3060U	SCREW,TAP TITE(B) BIND(3D)	3x6
205	AE003524	8109I30A0U	SCREW,TAP TITE(B) WH7	3x10
206	AE005538	8110326A0U	SCREW,TAP TITE(P) FLAT	2.6x10
207	AE003532	810723040U	SCREW,TAP TITE(S) BIND	3x4
208	AE006674	810223060U	SCREW,BIND	
209	AE003530	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
210	AE007202	810923053U	SCREW,TAP TITE(B) R BIND	3x5.3

CHASSIS REPLACEMENT PARTS LIST

	Location No.	TSB P/N	Reference No.	Description	
	300	AE006675	A2G101H420A	DECK ASSY	A2G101H420A
	301	AE005514	85OA400245	PINCH ROLLER BLOCK VA2	
	302	AE006679	85OP900759	LEVER,FLAP(S)	
	303	BZ710193	85OP200290	BELT,CAPSTAN (S)	
	304	BZ710515	85OP600581	WORM	
	305	AE005919	85OP500091	BASE,AC HEAD	
	306	BZ710112	85OP800324	SPRING,AC HEAD	
	307	AE006676	85OA000529	MAIN CHASSIS ASS'Y(S)	
	308	BZ710517	85OA200089	CLUTCH ASS'Y	
	309	AE005920	85OA200092	ARM IDLER ASS'Y	
	310	AE005836	85OA300068	LOADING ARM S UNIT	
	311	AE005837	85OA300070	LOADING ARM T UNIT	
	312	BZ710521	85OA400223	INCLINED BASE T UNIT 3S	
	313	AE005838	85OA400249	P5 ARM ASS'Y 2	
	314	AE005839	85OA400248	TENSION ARM ASS'Y 2	
	315	BZ710524	85OA400231	INCLINED BASE S UNIT	
	316	AE006677	85OA900236	CASS HOLDER ASS'Y(S)	
	317	BZ710552	85OP900745	CASS,OPENER	
	318	BZ710106	85OP700035	REFLECTOR,LED	
	319	AE006678	85OP900756	BRACKET,TOP(S)	
	320	AE004275	85OP400549	HOLDER,CAPSTAN	
	321	AE005842	85OA900233	LINK UNIT	
	322	BZ710531	85OP000496	POST,CASS GUIDE	
	323	BZ710532	85OP200316	REEL,S (S)	
	324	BZ710533	85OP200317	REEL,T (S)	
	325	BZ710534	85OP200308	GEAR,IDLER	
	326	BZ710535	85OP200311	GEAR,CLUTCH	
	327	BZ710536	85OP200312	GEAR,COUPLING	
	328	BZ710537	85OP200313	LEVER,CLUTCH	
	329	BZ710538	85OP300194	GEAR,MAIN LOADING	
	330	BZ710092	85OP400490	LEVER,TENSION	
	331	BZ710093	85OP400492	HOLDER,TENSION	
	332	BZ710366	85OP400520	CAP,P4	
	333	BZ710762	85OP400542	BAND,TENSION	
	334	BZ710540	85OP400533	CONNECT,TENSION	
	335	BZ710541	85OP600573	ARM,BRAKE T	
	336	BZ710763	85OP600584	BAND,BRAKE T	
	337	BZ710543	85OP600577	CAM,PINCH ROLLER	
	338	BZ710544	85OP600578	CAM,MAIN	
	339	AE005843	85OP600585	ROD,MAIN	
	340	BZ710546	85OP600582	GEAR,JOINT	
	341	BZ710110	85OP800322	SPRING,TENSION	
	342	BZ710547	85OP800360	SPRING,BRAKE T	
	343	BZ710548	85OP800355	SPRING,COUPLING	
	344	BZ710549	85OP800356	SPRING,RING	
	345	AE005844	85OP900754	LEVER,LINK	
	501	AE005845	810722680U	SCREW,TAP TITE(S) BIND	M2.6x8
	502	AE005846	83ETW3000U	E-RING	3.0
	503	AE005847	810722640U	SCREW,TAP TITE(S) BIND	M2.6x4
	504	AE005848	810212060U	SCREW,PAN	M2x6
	505	AE005849	810912660U	SCREW,TAP TITE(B) PAN	M2.6x6
	506	AE005850	810A13040U	SCREW/WASHER(A)	M3x4
	507	AE005851	810A12650U	SCREW/WASHER(A)	M2.6x5
	508	BZ710056	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
	509	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
	510	AE005540	810722660U	SCREW,TAP TITE(S) BIND	2.6x6
	CD1501	BZ614292	122H071704	CORD JUMPER	2H071704
	CD1502	BZ614339	122Y021902	CORD JUMPER	2Y021902
	H5001	AE004714	1523Q91004	HEAD,AUDIO CONTROL	VTR-1X2RPE22-772
	H5002	AD301676	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154
△	M101	AE005552	1596S98002	MOTOR,LOADING	MDB2B66B
	M2001	AE005853	1510S98044	CAPSTAN DD UNIT	F2QVB73B
	M2003	AE003673	1589S11020	MICRO MOTOR	I2OAL34
△	UN4001	AE006680	A2F401H500	CYLINDER UNIT ASS'Y	A2F401H500

CHASSIS REPLACEMENT PARTS LIST

	Location No.	TSB P/N	Reference No.	Description	
	300	AE006965	A2G001H420A	DECK ASSY	A2G001H420A
	301	AE005514	85OA400245	PINCH ROLLER BLOCK VA2	
	302	AE006679	85OP900759	LEVER,FLAP(S)	
	303	BZ710193	85OP200290	BELT,CAPSTAN (S)	
	304	BZ710515	85OP600581	WORM	
	305	AE005919	85OP500091	BASE,AC HEAD	
	306	BZ710112	85OP800324	SPRING,AC HEAD	
	307	AE006676	85OA000529	MAIN CHASSIS ASS'Y(S)	
	308	BZ710517	85OA200089	CLUTCH ASS'Y	
	309	AE005920	85OA200092	ARM IDLER ASS'Y	
	310	AE005836	85OA300068	LOADING ARM S UNIT	
	311	AE005837	85OA300070	LOADING ARM T UNIT	
	312	BZ710521	85OA400223	INCLINED BASE T UNIT 3S	
	313	AE005838	85OA400249	P5 ARM ASS'Y 2	
	314	AE005839	85OA400248	TENSION ARM ASS'Y 2	
	315	BZ710524	85OA400231	INCLINED BASE S UNIT	
	316	AE006677	85OA900236	CASS HOLDER ASS'Y(S)	
	317	BZ710552	85OP900745	CASS,OPENER	
	318	BZ710106	85OP700035	REFLECTOR,LED	
	319	AE006678	85OP900756	BRACKET,TOP(S)	
	320	AE007221	85OP400554	HOLDER,CAPSTAN	
	321	AE005842	85OA900233	LINK UNIT	
	322	BZ710531	85OP000496	POST,CASS GUIDE	
	323	BZ710532	85OP200316	REEL,S (S)	
	324	BZ710533	85OP200317	REEL,T (S)	
	325	BZ710534	85OP200308	GEAR,IDLER	
	326	BZ710535	85OP200311	GEAR,CLUTCH	
	327	BZ710536	85OP200312	GEAR,COUPLING	
	328	BZ710537	85OP200313	LEVER,CLUTCH	
	329	BZ710538	85OP300194	GEAR,MAIN LOADING	
	330	BZ710092	85OP400490	LEVER,TENSION	
	331	BZ710093	85OP400492	HOLDER,TENSION	
	332	BZ710366	85OP400520	CAP,P4	
	333	BZ710762	85OP400542	BAND,TENSION	
	334	BZ710540	85OP400533	CONNECT,TENSION	
	335	BZ710541	85OP600573	ARM,BRAKE T	
	336	BZ710763	85OP600584	BAND,BRAKE T	
	337	BZ710543	85OP600577	CAM,PINCH ROLLER	
	338	BZ710544	85OP600578	CAM,MAIN	
	339	AE005843	85OP600585	ROD,MAIN	
	340	BZ710546	85OP600582	GEAR,JOINT	
	341	BZ710110	85OP800322	SPRING,TENSION	
	342	BZ710547	85OP800360	SPRING,BRAKE T	
	343	BZ710548	85OP800355	SPRING,COUPLING	
	344	BZ710549	85OP800356	SPRING,RING	
	345	AE005844	85OP900754	LEVER,LINK	
	501	AE005845	810722680U	SCREW,TAP TITE(S) BIND	M2.6x8
	502	AE005846	83ETW3000U	E-RING	3.0
	503	AE005847	810722640U	SCREW,TAP TITE(S) BIND	M2.6x4
	504	AE005848	810212060U	SCREW,PAN	M2x6
	505	AE005849	810912660U	SCREW,TAP TITE(B) PAN	M2.6x6
	506	AE005850	810A13040U	SCREW/WASHER(A)	M3x4
	507	AE005851	810A12650U	SCREW/WASHER(A)	M2.6x5
	508	BZ710056	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
	509	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
	510	AE005540	810722660U	SCREW,TAP TITE(S) BIND	2.6x6
	CD1501	BZ614292	122H071704	CORD JUMPER	2H071704
	CD1502	BZ614339	122Y021902	CORD JUMPER	2Y021902
	H5001	AE004714	1523Q91004	HEAD,AUDIO CONTROL	VTR-1X2RPE22-772
	H5002	AD301676	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154
△	M101	AE005552	1596S98002	MOTOR,LOADING	MDB2B66B
	M2001	AE005853	1510S98044	CAPSTAN DD UNIT	F2QVB73B
	M2003	AE006792	1589S11025	MICRO MOTOR	I20AL34K
△	UN4001	AE006966	A2G001H500	CYLINDER UNIT ASS'Y	A2G001H500

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R101	AE000360	R002T4561J RC	560 OHM 1/4W
R102	AD302345	R803R9472J RC	4.7K OHM 1/16W
R103	AD302345	R803R9472J RC	4.7K OHM 1/16W
R104	AE002140	R002T4100J RC	10 OHM 1/4W
R105	AE001784	R803R9103J RC	10K OHM 1/16W
R106	AE001801	R803R9682J RC	6.8K OHM 1/16W
R107	AE001893	R803R9332J RC	3.3K OHM 1/16W
R108	AE001891	R803R9223J RC	22K OHM 1/16W
R110	AE001805	R803R9822J RC	8.2K OHM 1/16W
R111	AE001805	R803R9822J RC	8.2K OHM 1/16W
R112	AE001282	R803R9334J RC	330K OHM 1/16W
R113	AE001890	R803R9221J RC	220 OHM 1/16W
R114	AE001891	R803R9223J RC	22K OHM 1/16W
R115	AE002154	R803R9821J RC	820 OHM 1/16W
R116	AE002145	R803R9153J RC	15K OHM 1/16W
R117	AE001801	R803R9682J RC	6.8K OHM 1/16W
R119	AE000849	R803R9152J RC	1.5K OHM 1/16W
R120	AE001783	R803R9102J RC	1K OHM 1/16W
R121	AE001783	R803R9102J RC	1K OHM 1/16W
R122	AE001785	R803R9104J RC	100K OHM 1/16W
R123	BZ210126	R002T4222J RC	2.2K OHM 1/4W
R124	AE001806	R803R9823J RC	82K OHM 1/16W
R125	AE002147	R803R9182J RC	1.8K OHM 1/16W
R126	AE001890	R803R9221J RC	220 OHM 1/16W
R127	AE001802	R803R9684J RC	680K OHM 1/16W
R128	AE001801	R803R9682J RC	6.8K OHM 1/16W
R129	BZ210121	R002T4182J RC	1.8K OHM 1/4W
R130	AE001890	R803R9221J RC	220 OHM 1/16W
R131	AE000849	R803R9152J RC	1.5K OHM 1/16W
R132	AE001893	R803R9332J RC	3.3K OHM 1/16W
R133	AE001805	R803R9822J RC	8.2K OHM 1/16W
R134	AE002871	R803R9224J RC	220K OHM 1/16W
R135	AE002152	R803R9561J RC	560 OHM 1/16W
R136	AE001891	R803R9223J RC	22K OHM 1/16W
R137	AE002150	R803R9333J RC	33K OHM 1/16W
R138	BZ210192	R002T4223J RC	22K OHM 1/4W
R139	AE001788	R803R9123J RC	12K OHM 1/16W
R140	AE001797	R803R9473J RC	47K OHM 1/16W
R141	BZ210124	R002T4122J RC	1.2K OHM 1/4W
R142	AE002154	R803R9821J RC	820 OHM 1/16W
R146	AE001788	R803R9123J RC	12K OHM 1/16W
R147	AE001783	R803R9102J RC	1K OHM 1/16W
R303	AE001797	R803R9473J RC	47K OHM 1/16W
R304	AE001784	R803R9103J RC	10K OHM 1/16W
R305	BZ210119	R002T4102J RC	1K OHM 1/4W
R306	BZ210122	R002T4472J RC	4.7K OHM 1/4W
R307	79091142	R803R9220J RC	22 OHM 1/16W
△ R501	BZ210219	R0G3K2335K RC	3.3M OHM 1/2W
△ R502	79099002	R3X181R39J R,METAL OXIDE	0.39 OHM 1W
△ R503	BZ210206	R002T2155J RC	1.5M OHM 1/2W
△ R504	AD301141	R3X181561J R,METAL OXIDE	560 OHM 1W
R506	AE001774	R002T2105J RC	1M OHM 1/2W
R507	BZ210182	R002T4103J RC	10K OHM 1/4W
R508	AE000358	R002T4471J RC	470 OHM 1/4W
R509	AD301203	R002T4101J RC	100 OHM 1/4W
R510	BZ210126	R002T4222J RC	2.2K OHM 1/4W
△ R512	BZ210008	R3X181273J R,METAL OXIDE	27K OHM 1W
R513	AD301203	R002T4101J RC	100 OHM 1/4W
R514	BZ210182	R002T4103J RC	10K OHM 1/4W
△ R516	AE005735	R63881R22J R,FUSE	0.22 OHM 1W
R517	BZ210119	R002T4102J RC	1K OHM 1/4W
R518	AE000360	R002T4561J RC	560 OHM 1/4W
R519	BZ210119	R002T4102J RC	1K OHM 1/4W
R520	BZ210233	R4X5T6272F R,METAL	2.7K OHM 1/6W
R521	AE000485	R002T4391J RC	390 OHM 1/4W
R522	BZ210233	R4X5T6272F R,METAL	2.7K OHM 1/6W
R523	BZ210119	R002T4102J RC	1K OHM 1/4W
R524	79091119	R002T4331J RC	330 OHM 1/4W
R525	BZ210182	R002T4103J RC	10K OHM 1/4W
R526	AE000360	R002T4561J RC	560 OHM 1/4W
R527	BZ210192	R002T4223J RC	22K OHM 1/4W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R528	BZ210192	R002T4223J RC	22K OHM 1/4W
R529	BZ210182	R002T4103J RC	10K OHM 1/4W
R530	AE000145	R002T2561J RC	560 OHM 1/2W
△ R531	AE006620	R65584220J R,FUSE	22 OHM 1/4W
△ R532	AE004370	R3X181121J R,METAL OXIDE	120 OHM 1W
△ R533	AE006621	R655842R7J R,FUSE	2.7 OHM 1/4W
R534	BZ210119	R002T4102J RC	1K OHM 1/4W
R535	BZ210118	R002T4473J RC	47K OHM 1/4W
R536	BZ210119	R002T4102J RC	1K OHM 1/4W
△ R538	AE001255	R65584150J R,FUSE	15 OHM 1/4W
R542	BZ210192	R002T4223J RC	22K OHM 1/4W
R601	79091119	R002T4331J RC	330 OHM 1/4W
R602	BZ210135	R002T4221J RC	220 OHM 1/4W
R603	BZ210106	R002T4823J RC	82K OHM 1/4W
R604	BZ210182	R002T4103J RC	10K OHM 1/4W
R605	AE001776	R002T4133J RC	13K OHM 1/4W
R606	BZ210162	R002T4682J RC	6.8K OHM 1/4W
R607	AE001777	R002T4392J RC	3.9K OHM 1/4W
R608	BZ210182	R002T4103J RC	10K OHM 1/4W
R609	BZ210182	R002T4103J RC	10K OHM 1/4W
R610	AD300651	R002T4272J RC	2.7K OHM 1/4W
R611	BZ210060	R002T4332J RC	3.3K OHM 1/4W
R613	AE000937	R002T4151J RC	150 OHM 1/4W
R614	AD301301	R002T4152J RC	1.5K OHM 1/4W
R615	AD301301	R002T4152J RC	1.5K OHM 1/4W
R616	BZ210121	R002T4182J RC	1.8K OHM 1/4W
R617	AD300651	R002T4272J RC	2.7K OHM 1/4W
R618	AE001777	R002T4392J RC	3.9K OHM 1/4W
R619	BZ210162	R002T4682J RC	6.8K OHM 1/4W
R620	AE001776	R002T4133J RC	13K OHM 1/4W
R621	BZ210107	R002T4750J RC	75 OHM 1/4W
R651	79091139	R803R9151J RC	150 OHM 1/16W
R653	AE001803	R803R9750J RC	75 OHM 1/16W
R654	AD302291	R803R9683J RC	68K OHM 1/16W
R655	AE002146	R803R9154J RC	150K OHM 1/16W
R656	AE000485	R002T4391J RC	390 OHM 1/4W
R657	AE001790	R803R9222J RC	2.2K OHM 1/16W
R658	AD302291	R803R9683J RC	68K OHM 1/16W
R659	AE002146	R803R9154J RC	150K OHM 1/16W
R660	AE001790	R803R9222J RC	2.2K OHM 1/16W
R661	AD301203	R002T4101J RC	100 OHM 1/4W
R663	AE001781	R803R9101J RC	100 OHM 1/16W
R664	AE001781	R803R9101J RC	100 OHM 1/16W
R701	BZ210182	R002T4103J RC	10K OHM 1/4W
R702	AE002147	R803R9182J RC	1.8K OHM 1/16W
R703	AE001555	R002T4563J RC	56K OHM 1/4W
R705	AE001555	R002T4563J RC	56K OHM 1/4W
R706	AE000849	R803R9152J RC	1.5K OHM 1/16W
R707	AE001801	R803R9682J RC	6.8K OHM 1/16W
R708	AE001801	R803R9682J RC	6.8K OHM 1/16W
R709	AE001791	R803R9225J RC	2.2M OHM 1/16W
R710	BZ210119	R002T4102J RC	1K OHM 1/4W
R711	AE001892	R803R9331J RC	330 OHM 1/16W
R712	AE001892	R803R9331J RC	330 OHM 1/16W
R713	AE001892	R803R9331J RC	330 OHM 1/16W
R714	AD302291	R803R9683J RC	68K OHM 1/16W
R715	AE004013	R803R9394J RC	390K OHM 1/16W
R716	AE001555	R002T4563J RC	56K OHM 1/4W
R717	AE001801	R803R9682J RC	6.8K OHM 1/16W
R718	AD302345	R803R9472J RC	4.7K OHM 1/16W
R719	AE001555	R002T4563J RC	56K OHM 1/4W
R720	AE001801	R803R9682J RC	6.8K OHM 1/16W
R721	AE002147	R803R9182J RC	1.8K OHM 1/16W
R722	BZ210182	R002T4103J RC	10K OHM 1/4W
R723	AE000849	R803R9152J RC	1.5K OHM 1/16W
R724	BZ210119	R002T4102J RC	1K OHM 1/4W
R725	AE001781	R803R9101J RC	100 OHM 1/16W
R726	AE001781	R803R9101J RC	100 OHM 1/16W
R727	AE001790	R803R9222J RC	2.2K OHM 1/16W
R728	AE001796	R803R9471J RC	470 OHM 1/16W
R729	79091400	R803R9393J RC	39K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R730	AE001783	R803R9102J RC	1K OHM 1/16W
R801	AD301203	R002T4101J RC	100 OHM 1/4W
R802	AD301203	R002T4101J RC	100 OHM 1/4W
R803	AE001893	R803R9332J RC	3.3K OHM 1/16W
R804	AD301203	R002T4101J RC	100 OHM 1/4W
R805	AD301203	R002T4101J RC	100 OHM 1/4W
R806	AE005089	R803R9184J RC	180K OHM 1/16W
R807	AE002532	R803R9272J RC	2.7K OHM 1/16W
R808	AE001801	R803R9682J RC	6.8K OHM 1/16W
R809	AE001781	R803R9101J RC	100 OHM 1/16W
R1704	AE000845	R803R9103F RC	10K OHM 1/16W
R1705	AE005088	R803R9182F RC	1.8K OHM 1/16W
△ R1706	AE001074	R3X28B1R5J R,METAL OXIDE	1.5 OHM 3W
R1707	AE002906	R803R9153F RC	15K OHM 1/16W
R1708	AE001797	R803R9473J RC	47K OHM 1/16W
R1709	AE001783	R803R9102J RC	1K OHM 1/16W
R1710	AE000845	R803R9103F RC	10K OHM 1/16W
R1711	AE006622	R803R9392F RC	3.9K OHM 1/16W
R1712	AE006624	R803R9561F RC	560 OHM 1/16W
R1713	AD302345	R803R9472J RC	4.7K OHM 1/16W
R1714	AE002598	R002T2562J RC	5.6K OHM 1/2W
R1715	AE001797	R803R9473J RC	47K OHM 1/16W
△ R1716	BZ210253	R002T2151J RC	150 OHM 1/2W
R1717	AE001796	R803R9471J RC	470 OHM 1/16W
R1719	BZ210122	R002T4472J RC	4.7K OHM 1/4W
R1720	AE001891	R803R9223J RC	22K OHM 1/16W
R1721	BZ210122	R002T4472J RC	4.7K OHM 1/4W
R1722	BZ210119	R002T4102J RC	1K OHM 1/4W
R1723	AE001891	R803R9223J RC	22K OHM 1/16W
R1727	AE006619	R002T28R2J RC	8.2 OHM 1/2W
R1728	AE001783	R803R9102J RC	1K OHM 1/16W
R1730	AD302345	R803R9472J RC	4.7K OHM 1/16W
R1731	AE001891	R803R9223J RC	22K OHM 1/16W
R1732	AE001796	R803R9471J RC	470 OHM 1/16W
R1733	AE001796	R803R9471J RC	470 OHM 1/16W
R3001	AE001282	R803R9334J RC	330K OHM 1/16W
R3002	AE000356	R002T4271J RC	270 OHM 1/4W
R3003	AE002149	R803R9274J RC	270K OHM 1/16W
R3004	AE001797	R803R9473J RC	47K OHM 1/16W
R3006	AE001783	R803R9102J RC	1K OHM 1/16W
R3007	AE002152	R803R9561J RC	560 OHM 1/16W
R3008	AE002150	R803R9333J RC	33K OHM 1/16W
R3009	AE001887	R803R9105J RC	1M OHM 1/16W
R3010	AE001801	R803R9682J RC	6.8K OHM 1/16W
R3011	AD301203	R002T4101J RC	100 OHM 1/4W
R3012	AE001891	R803R9223J RC	22K OHM 1/16W
R3013	AE001784	R803R9103J RC	10K OHM 1/16W
R3014	AE002150	R803R9333J RC	33K OHM 1/16W
R3015	AE001891	R803R9223J RC	22K OHM 1/16W
R3016	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3017	AE002152	R803R9561J RC	560 OHM 1/16W
R3018	AE001898	R803R9563J RC	56K OHM 1/16W
R3019	AE002152	R803R9561J RC	560 OHM 1/16W
R3020	AE001898	R803R9563J RC	56K OHM 1/16W
R3021	AE001775	R002T4121J RC	120 OHM 1/4W
R3022	AE001784	R803R9103J RC	10K OHM 1/16W
R3023	AE001797	R803R9473J RC	47K OHM 1/16W
R3024	AE001797	R803R9473J RC	47K OHM 1/16W
R3025	AE001887	R803R9105J RC	1M OHM 1/16W
R3026	AE002146	R803R9154J RC	150K OHM 1/16W
R3027	AE002145	R803R9153J RC	15K OHM 1/16W
R3028	AE001783	R803R9102J RC	1K OHM 1/16W
R3029	AE001783	R803R9102J RC	1K OHM 1/16W
R3030	AE001796	R803R9471J RC	470 OHM 1/16W
R3031	AE001797	R803R9473J RC	47K OHM 1/16W
R3032	BZ210166	R002T4562J RC	5.6K OHM 1/4W
R3033	AE001896	R803R9474J RC	470K OHM 1/16W
R3034	AE001797	R803R9473J RC	47K OHM 1/16W
R3037	AE002148	R803R9183J RC	18K OHM 1/16W
R3038	AE001784	R803R9103J RC	10K OHM 1/16W
R3039	AE001891	R803R9223J RC	22K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R3040	AE001783	R803R9102J RC	1K OHM 1/16W
R3041	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3042	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3043	AE001282	R803R9334J RC	330K OHM 1/16W
R3044	AE001784	R803R9103J RC	10K OHM 1/16W
R3045	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3046	AE001891	R803R9223J RC	22K OHM 1/16W
R3047	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3048	AE001891	R803R9223J RC	22K OHM 1/16W
R3049	AD302345	R803R9472J RC	4.7K OHM 1/16W
R3050	BZ210122	R002T4472J RC	4.7K OHM 1/4W
R3051	BZ210182	R002T4103J RC	10K OHM 1/4W
R3052	AD302345	R803R9472J RC	4.7K OHM 1/16W
R3053	AE001784	R803R9103J RC	10K OHM 1/16W
R3054	AD302345	R803R9472J RC	4.7K OHM 1/16W
R3055	AE001797	R803R9473J RC	47K OHM 1/16W
R3056	AE001891	R803R9223J RC	22K OHM 1/16W
R3057	AD302291	R803R9683J RC	68K OHM 1/16W
R3058	AE002145	R803R9153J RC	15K OHM 1/16W
R4001	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4003	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4005	AE001783	R803R9102J RC	1K OHM 1/16W
R4006	AE001783	R803R9102J RC	1K OHM 1/16W
R4007	AE001783	R803R9102J RC	1K OHM 1/16W
R4008	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4009	AE001895	R803R9392J RC	3.9K OHM 1/16W
R4010	AE001895	R803R9392J RC	3.9K OHM 1/16W
R4011	AE001894	R803R9391F RC	390 OHM 1/16W
R4012	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4014	79091142	R803R9220J RC	22 OHM 1/16W
R4015	AE001781	R803R9101J RC	100 OHM 1/16W
R4016	AE001781	R803R9101J RC	100 OHM 1/16W
R4017	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4018	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4019	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4020	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4021	AE001781	R803R9101J RC	100 OHM 1/16W
R4022	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4023	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4024	AE001283	R803R9470J RC	47 OHM 1/16W
R4025	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4026	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4027	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4028	AE001283	R803R9470J RC	47 OHM 1/16W
R4029	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4030	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4031	AE001783	R803R9102J RC	1K OHM 1/16W
R4032	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4033	AE001783	R803R9102J RC	1K OHM 1/16W
R4034	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4035	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4036	AE001781	R803R9101J RC	100 OHM 1/16W
R4039	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4040	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4041	AE001783	R803R9102J RC	1K OHM 1/16W
R4043	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4044	79091142	R803R9220J RC	22 OHM 1/16W
R4046	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4047	AE001781	R803R9101J RC	100 OHM 1/16W
R4048	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4049	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4053	AE006623	R803R9510J RC	51 OHM 1/16W
R4056	AE006623	R803R9510J RC	51 OHM 1/16W
R4057	AE006623	R803R9510J RC	51 OHM 1/16W
R4058	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4059	79091142	R803R9220J RC	22 OHM 1/16W
R4060	AE006623	R803R9510J RC	51 OHM 1/16W
R4061	AE006623	R803R9510J RC	51 OHM 1/16W
R4062	AE006623	R803R9510J RC	51 OHM 1/16W
R4063	AE006623	R803R9510J RC	51 OHM 1/16W
R4064	AE001799	R803R9562J RC	5.6K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R4066	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4067	AE001784	R803R9103J RC	10K OHM 1/16W
R4068	AE001794	R803R9330J RC	33 OHM 1/16W
R4069	AE001794	R803R9330J RC	33 OHM 1/16W
R4070	AE001794	R803R9330J RC	33 OHM 1/16W
R4071	AE001794	R803R9330J RC	33 OHM 1/16W
R4072	AE001794	R803R9330J RC	33 OHM 1/16W
R4073	AE001794	R803R9330J RC	33 OHM 1/16W
R4074	AE001794	R803R9330J RC	33 OHM 1/16W
R4075	AE001794	R803R9330J RC	33 OHM 1/16W
R4076	AE001794	R803R9330J RC	33 OHM 1/16W
R4077	AE001794	R803R9330J RC	33 OHM 1/16W
R4078	AE001794	R803R9330J RC	33 OHM 1/16W
R4079	AE001794	R803R9330J RC	33 OHM 1/16W
R4080	AE001794	R803R9330J RC	33 OHM 1/16W
R4081	AE001794	R803R9330J RC	33 OHM 1/16W
R4082	AE001794	R803R9330J RC	33 OHM 1/16W
R4083	AE001794	R803R9330J RC	33 OHM 1/16W
R4084	AE004251	R803R9820J RC	82 OHM 1/16W
R4085	79091142	R803R9220J RC	22 OHM 1/16W
R4086	AE004251	R803R9820J RC	82 OHM 1/16W
R4087	AE001794	R803R9330J RC	33 OHM 1/16W
R4088	AE001794	R803R9330J RC	33 OHM 1/16W
R4089	AE001794	R803R9330J RC	33 OHM 1/16W
R4090	AE001794	R803R9330J RC	33 OHM 1/16W
R4091	AE001794	R803R9330J RC	33 OHM 1/16W
R4092	79091142	R803R9220J RC	22 OHM 1/16W
R4093	AE004251	R803R9820J RC	82 OHM 1/16W
R4094	79091142	R803R9220J RC	22 OHM 1/16W
R4095	AE001794	R803R9330J RC	33 OHM 1/16W
R4097	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4098	AE001794	R803R9330J RC	33 OHM 1/16W
R4099	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4100	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4101	AE001794	R803R9330J RC	33 OHM 1/16W
R4102	AE001794	R803R9330J RC	33 OHM 1/16W
R4103	AE001794	R803R9330J RC	33 OHM 1/16W
R4104	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4105	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4106	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4108	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4109	79091142	R803R9220J RC	22 OHM 1/16W
R4110	AE001784	R803R9103J RC	10K OHM 1/16W
R4113	79091142	R803R9220J RC	22 OHM 1/16W
R4114	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4115	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4116	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4117	AE001784	R803R9103J RC	10K OHM 1/16W
R4118	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4119	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4120	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4121	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4122	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4123	AE001783	R803R9102J RC	1K OHM 1/16W
R4124	AE001783	R803R9102J RC	1K OHM 1/16W
R4126	AE001886	R803R9100J RC	10 OHM 1/16W
R4127	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4129	79091142	R803R9220J RC	22 OHM 1/16W
R4130	AE001783	R803R9102J RC	1K OHM 1/16W
R4131	AE001781	R803R9101J RC	100 OHM 1/16W
R4132	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4133	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4134	AE001886	R803R9100J RC	10 OHM 1/16W
R4135	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4139	AE001886	R803R9100J RC	10 OHM 1/16W
R4140	AE001886	R803R9100J RC	10 OHM 1/16W
R5719	AE001784	R803R9103J RC	10K OHM 1/16W
R7302	AE001899	R803R9750F RC	75 OHM 1/16W
R7303	AE001899	R803R9750F RC	75 OHM 1/16W
R7304	AE001899	R803R9750F RC	75 OHM 1/16W
R7305	AD302345	R803R9472J RC	4.7K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R7306	AD302345	R803R9472J RC	4.7K OHM 1/16W
R7307	AE001899	R803R9750F RC	75 OHM 1/16W
R7308	AE001797	R803R9473J RC	47K OHM 1/16W
R7309	AE001797	R803R9473J RC	47K OHM 1/16W
R7310	AE001785	R803R9104J RC	100K OHM 1/16W
R7311	AE001785	R803R9104J RC	100K OHM 1/16W
R7312	AE001785	R803R9104J RC	100K OHM 1/16W
R7313	AE001899	R803R9750F RC	75 OHM 1/16W
R7314	AE001899	R803R9750F RC	75 OHM 1/16W
R7318	AE001785	R803R9104J RC	100K OHM 1/16W
R7319	AE001785	R803R9104J RC	100K OHM 1/16W
R7320	AE001785	R803R9104J RC	100K OHM 1/16W
R7321	AE001806	R803R9823J RC	82K OHM 1/16W
R7322	AE001806	R803R9823J RC	82K OHM 1/16W
R7323	AE006623	R803R9510J RC	51 OHM 1/16W
R7326	AE006623	R803R9510J RC	51 OHM 1/16W
R7327	AE006623	R803R9510J RC	51 OHM 1/16W
R7331	AE006623	R803R9510J RC	51 OHM 1/16W
R7333	AE006623	R803R9510J RC	51 OHM 1/16W
R7335	AE006623	R803R9510J RC	51 OHM 1/16W
R7337	AE001785	R803R9104J RC	100K OHM 1/16W
R7338	AE001785	R803R9104J RC	100K OHM 1/16W
R7339	AE001785	R803R9104J RC	100K OHM 1/16W
R7340	AE006623	R803R9510J RC	51 OHM 1/16W
R7341	AE006623	R803R9510J RC	51 OHM 1/16W
R7342	AE006623	R803R9510J RC	51 OHM 1/16W
R8001	AE001803	R803R9750J RC	75 OHM 1/16W
R8002	AE002151	R803R9391J RC	390 OHM 1/16W
R8003	AE001803	R803R9750J RC	75 OHM 1/16W
R8004	AE001803	R803R9750J RC	75 OHM 1/16W
R8006	AD302291	R803R9683J RC	68K OHM 1/16W
R8007	AE002146	R803R9154J RC	150K OHM 1/16W
R8008	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8009	AD302291	R803R9683J RC	68K OHM 1/16W
R8010	AE002146	R803R9154J RC	150K OHM 1/16W
R8011	AE001784	R803R9103J RC	10K OHM 1/16W
R8012	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8013	AE001784	R803R9103J RC	10K OHM 1/16W
R8014	AD301203	R002T4101J RC	100 OHM 1/4W
R8015	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8016	AE001801	R803R9682J RC	6.8K OHM 1/16W
R8017	AE001796	R803R9471J RC	470 OHM 1/16W
R8018	AE000358	R002T4471J RC	470 OHM 1/4W
R8019	AE003984	R002T4330J RC	33 OHM 1/4W
R8020	AE000353	R002T2471J RC	470 OHM 1/2W
R8021	AE001803	R803R9750J RC	75 OHM 1/16W
R8022	AE001784	R803R9103J RC	10K OHM 1/16W
R8023	AE001784	R803R9103J RC	10K OHM 1/16W
R8024	AE002533	R803R9681J RC	680 OHM 1/16W
R8025	AE000964	R002T4681J RC	680 OHM 1/4W
R8026	AE002533	R803R9681J RC	680 OHM 1/16W
R8027	AE000964	R002T4681J RC	680 OHM 1/4W
R8028	AE001800	R803R9680J RC	68 OHM 1/16W
R8029	AE001890	R803R9221J RC	220 OHM 1/16W
R8030	AE000849	R803R9152J RC	1.5K OHM 1/16W
R8031	AE001893	R803R9332J RC	3.3K OHM 1/16W
R8032	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8033	AE001796	R803R9471J RC	470 OHM 1/16W
R8034	AE000358	R002T4471J RC	470 OHM 1/4W
R8035	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8036	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8038	AE001801	R803R9682J RC	6.8K OHM 1/16W
R8039	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8040	AE001784	R803R9103J RC	10K OHM 1/16W
R8041	AE001007	R002T4123J RC	12K OHM 1/4W
R8042	BZ210192	R002T4223J RC	22K OHM 1/4W
R8043	BZ210107	R002T4750J RC	75 OHM 1/4W
R8044	BZ210107	R002T4750J RC	75 OHM 1/4W
R8045	AE001797	R803R9473J RC	47K OHM 1/16W
R8301	AE001899	R803R9750F RC	75 OHM 1/16W
R8302	AE001803	R803R9750J RC	75 OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R8303	AE001803	R803R9750J RC	75 OHM 1/16W
R8304	AE000362	R002T4821J RC	820 OHM 1/4W
R8305	AE001781	R803R9101J RC	100 OHM 1/16W
R8306	AE001799	R803R9562J RC	5.6K OHM 1/16W
R8307	AE001781	R803R9101J RC	100 OHM 1/16W
R8308	AE001781	R803R9101J RC	100 OHM 1/16W
R8310	AE001783	R803R9102J RC	1K OHM 1/16W
R8311	AD302345	R803R9472J RC	4.7K OHM 1/16W
R8313	AE001799	R803R9562J RC	5.6K OHM 1/16W
R8314	AE001781	R803R9101J RC	100 OHM 1/16W
R8316	AE001783	R803R9102J RC	1K OHM 1/16W
R8318	AD302345	R803R9472J RC	4.7K OHM 1/16W
R8322	AE002154	R803R9821J RC	820 OHM 1/16W
R8323	AE001781	R803R9101J RC	100 OHM 1/16W
R8324	AE001781	R803R9101J RC	100 OHM 1/16W
R8325	AE001787	R803R9122J RC	1.2K OHM 1/16W
R8326	AE001801	R803R9682J RC	6.8K OHM 1/16W
R8327	BZ210226	R002T4105J RC	1M OHM 1/4W
R8328	AE001783	R803R9102J RC	1K OHM 1/16W
R8329	AE001893	R803R9332J RC	3.3K OHM 1/16W
R8330	AE001783	R803R9102J RC	1K OHM 1/16W
R8332	AE001783	R803R9102J RC	1K OHM 1/16W
R8333	AE001792	R803R9273J RC	27K OHM 1/16W
R8334	AE001792	R803R9273J RC	27K OHM 1/16W
R8335	AE001887	R803R9105J RC	1M OHM 1/16W
R8336	AE001796	R803R9471J RC	470 OHM 1/16W
R8337	AE002154	R803R9821J RC	820 OHM 1/16W
R8338	AE000845	R803R9103F RC	10K OHM 1/16W
R8339	AE000845	R803R9103F RC	10K OHM 1/16W
R8340	AE006624	R803R9561F RC	560 OHM 1/16W
R8341	AE006624	R803R9561F RC	560 OHM 1/16W
R8342	AE006625	R803R9682F RC	6.8K OHM 1/16W
R8343	AE002906	R803R9153F RC	15K OHM 1/16W
R8344	AE006625	R803R9682F RC	6.8K OHM 1/16W
R8345	AE002906	R803R9153F RC	15K OHM 1/16W
R8346	AE001781	R803R9101J RC	100 OHM 1/16W
R8347	AE001781	R803R9101J RC	100 OHM 1/16W
R8348	AE001781	R803R9101J RC	100 OHM 1/16W
R8349	AE001781	R803R9101J RC	100 OHM 1/16W
R8350	AE000487	R002T4560J RC	56 OHM 1/4W
R8351	AE001891	R803R9223J RC	22K OHM 1/16W
R8352	AE001801	R803R9682J RC	6.8K OHM 1/16W
CAPACITORS			
C101	AE001773	P232W1223J CMP	0.022 UF 100V MMTS
C103	AE001543	E50HU0470M CE	47 UF 6.3V
C104	BZ110143	E02LU0221M CE	220 UF 6.3V
C105	BZ110263	E50HU2220M CE	22 UF 16 V
C106	AE001726	CS0PB0414K CC	0.01 UF 50V B
C107	AE002126	CS0PB04E4K CC	0.015 UF 50V B
C109	AE002124	CS0PB0315K CC	0.1 UF 25V B
C110	AE001543	E50HU0470M CE	47 UF 6.3V
C111	AE001732	CS0PCH4H1J CC	22 PF 50V CH
C112	AE001768	E50HU0221M CE	220 UF 6.3V
C114	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C115	AE001769	E50HU1330M CE	33 UF 10 V
C116	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C118	AE001726	CS0PB0414K CC	0.01 UF 50V B
C119	AE001544	E50HU3100M CE	10 UF 25 V
C120	AE000838	CS0PB0N16K CC	1 UF 10V B
C121	AE001273	CS0PB04K3K CC	0.0027UF 50V B
C122	AE002125	CS0PB04B3K CC	0.0012UF 50V B
C123	AE001770	E50HU54R7M CE	4.7 UF 50V
C124	BZ110074	E50HU5010M CE	1 UF 50V
C125	AE001274	CS0PCH4N2J CC	390 PF 50V CH
C126	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C127	AE001731	CS0PCH4G2J CC	180 PF 50V CH
C130	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C131	AE000336	E02LU1101M CE	100 UF 10V
C132	BZ110074	E50HU5010M CE	1 UF 50V
C133	AE000838	CS0PB0N16K CC	1 UF 10V B
C134	AE000838	CS0PB0N16K CC	1 UF 10V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C135	AE001771	E50HU5R22M CE	0.22 UF 50 V
C136	BZ110263	E50HU2220M CE	22 UF 16 V
C137	AE000838	CS0PB0N16K CC	1 UF 10V B
C138	AE000838	CS0PB0N16K CC	1 UF 10V B
C139	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C140	AE001544	E50HU3100M CE	10 UF 25 V
C141	AE001726	CS0PB0414K CC	0.01 UF 50V B
C142	AE001543	E50HU0470M CE	47 UF 6.3V
C143	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C144	AE001726	CS0PB0414K CC	0.01 UF 50V B
C145	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C146	AE000838	CS0PB0N16K CC	1 UF 10V B
C147	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C148	AE000838	CS0PB0N16K CC	1 UF 10V B
C151	AE000838	CS0PB0N16K CC	1 UF 10V B
C152	BZ210177	E02LU2470M CE	47 UF 16V
C153	AE002493	CS0PB04L3K CC	0.0033UF 50V B
C154	AE002124	CS0PB0315K CC	0.1 UF 25V B
C156	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C157	AE000838	CS0PB0N16K CC	1 UF 10V B
C158	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C159	AE001726	CS0PB0414K CC	0.01 UF 50V B
C160	AE001544	E50HU3100M CE	10 UF 25 V
C161	AE007062	E00NU1220M CE	22 UF 10 V
C162	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C163	AE001543	E50HU0470M CE	47 UF 6.3V
C165	AE002132	CS0PF04Q4Z CC	0.047 UF 50V F
C166	AE003843	CS0PB02U4K CC	0.068 UF 16V B
C167	AE001729	CS0PCH412J CC	100 PF 50V CH
C169	AE002132	CS0PF04Q4Z CC	0.047 UF 50V F
C172	AE001878	E62KU5100M CE	10 UF 50V
C173	AE001544	E50HU3100M CE	10 UF 25 V
C176	AE001732	CS0PCH4H1J CC	22 PF 50V CH
C301	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C302	BZ110189	E02LU0471M CE	470 UF 6.3V
C306	AE001729	CS0PCH412J CC	100 PF 50V CH
C308	AE001770	E50HU54R7M CE	4.7 UF 50V
C309	AE001726	CS0PB0414K CC	0.01 UF 50V B
C311	AE001770	E50HU54R7M CE	4.7 UF 50V
C315	AE001770	E50HU54R7M CE	4.7 UF 50V
△C501	AE006603	E61FF3102D CE	1000 UF 25V
△C502	BZ110035	P2122B104M CMP	0.1 UF 275V ECQUL
C503	AE000951	CQGTCH4Q2J CC	470 PF 50V CH
C504	BZ110035	P2122B104M CMP	0.1 UF 275V ECQUL
△C505	BZ110043	E02LU3221M CE	220 UF 25V
C508	AE006618	P1F4T0103J CP	0.01 UF 50V
C509	AE001281	P1F4T0183J CP	0.018 UF 50V
△C510	BZ110041	E02LT3471M CE	470 UF 25V
△C511	AE006605	E62PFC331M CE	330 UF 200V
C512	AE002819	CQGTB04W3K CC	0.0082UF 50V B
C513	BZ110202	C0PLRR713K CC	0.001 UF 2KV R
C515	AE001722	C0J0B0514K CC	0.01 UF 500V B
△C516	AE002878	CD39E0MQ3M CC	0.0047UF 250V
△C517	BZ110143	E02LU0221M CE	220 UF 6.3V
△C518	AE005174	E61FF1222D CE	2200 UF 10V
△C519	AE005174	E61FF1222D CE	2200 UF 10V
△C521	BZ110188	E50HU5100M CE	10 UF 50V
△C522	AD300666	E50HU5220M CE	22 UF 50 V
△C523	BZ110043	E02LU3221M CE	220 UF 25V
C524	BZ110243	CQGTB0414K CC	0.01 UF 50V B
C525	BZ110175	C03L0R7H2K CC	220 PF 2KV R
△C527	AD301535	E02LU2101M CE	100 UF 16V
C528	AD301535	E02LU2101M CE	100 UF 16V
△C529	AD300511	E02LT0222M CE	2200 UF 6.3V
△C530	AE000466	E02LU1221M CE	220 UF 10V
△C531	BZ110190	E02LU2221M CE	220 UF 16V
C533	BZ110117	CQGTB04Q3K CC	0.0047UF 50V B
C534	BZ110061	C0JTB0513K CC	0.001 UF 500V B
C536	AE001768	E50HU0221M CE	220 UF 6.3V
C538	AD300789	CQGTFO415Z CC	0.1 UF 50V F
C540	79091044	C0JTB05H2K CC	220 PF 500V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C541	AE000922	C0JTB05B3K CC	0.0012UF 500V B
△ C542	AE006601	C0JBB0712K CC	100 PF 2KV B
△ C543	AE006601	C0JBB0712K CC	100 PF 2KV B
C544	AE001769	E50HU1330M CE	33 UF 10 V
C601	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C602	BZ110166	CQGTCH412J CC	100 PF 50V CH
C603	BZ110166	CQGTCH412J CC	100 PF 50V CH
C604	BZ110166	CQGTCH412J CC	100 PF 50V CH
C605	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C606	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C607	AD300789	CQGTFO415Z CC	0.1 UF 50V F
C609	BZ110243	CQGTB0414K CC	0.01 UF 50V B
C610	AE001543	E50HU0470M CE	47 UF 6.3V
C611	BZ110188	E50HU5100M CE	10 UF 50V
C613	BZ110166	CQGTCH412J CC	100 PF 50V CH
C614	BZ110166	CQGTCH412J CC	100 PF 50V CH
C615	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C616	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C653	AE000332	E00NU2100M CE	10 UF 16 V
C654	AE000332	E00NU2100M CE	10 UF 16 V
C655	AD301535	E02LU2101M CE	100 UF 16V
C658	BZ110166	CQGTCH412J CC	100 PF 50V CH
C659	AE001729	CS0PCH412J CC	100 PF 50V CH
C660	AE001729	CS0PCH412J CC	100 PF 50V CH
C701	AE001734	CS0PCH4U2J CC	680 PF 50V CH
C702	AE001726	CS0PB0414K CC	0.01 UF 50V B
C703	BZ110263	E50HU2220M CE	22 UF 16 V
C706	AE002832	CS0PCH4S2J CC	560 PF 50V CH
C707	AE002832	CS0PCH4S2J CC	560 PF 50V CH
C708	AE001770	E50HU54R7M CE	4.7 UF 50V
C709	AE001770	E50HU54R7M CE	4.7 UF 50V
C710	AE001770	E50HU54R7M CE	4.7 UF 50V
C711	AE000838	CS0PB0N16K CC	1 UF 10V B
C712	AE000838	CS0PB0N16K CC	1 UF 10V B
C713	AE000838	CS0PB0N16K CC	1 UF 10V B
C714	AE001770	E50HU54R7M CE	4.7 UF 50V
C715	AE002124	CS0PB0315K CC	0.1 UF 25V B
C716	AE001544	E50HU3100M CE	10 UF 25 V
C717	BZ110263	E50HU2220M CE	22 UF 16 V
C718	AE000838	CS0PB0N16K CC	1 UF 10V B
C719	AE001544	E50HU3100M CE	10 UF 25 V
C722	AE002879	CS0PB03Q4K CC	0.047 UF 25V B
C723	AD301535	E02LU2101M CE	100 UF 16V
C724	AE000838	CS0PB0N16K CC	1 UF 10V B
C725	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C726	AE001770	E50HU54R7M CE	4.7 UF 50V
C727	AD301762	E50HU52R2M CE	2.2 UF 50V
C729	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C730	BZ110150	E50HU0101M CE	100 UF 6.3V
C731	AE001726	CS0PB0414K CC	0.01 UF 50V B
C732	AE001737	CS0PF0N16Z CC	1 UF 10V F
C733	AE000838	CS0PB0N16K CC	1 UF 10V B
C735	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C736	AE000838	CS0PB0N16K CC	1 UF 10V B
C737	79091097	E50HU2101M CE	100 UF 16 V
C738	AE001544	E50HU3100M CE	10 UF 25 V
C739	AE002832	CS0PCH4S2J CC	560 PF 50V CH
C741	AE000838	CS0PB0N16K CC	1 UF 10V B
C742	AE000835	CS0PB03L4K CC	0.033 UF 25V B
C743	AD301762	E50HU52R2M CE	2.2 UF 50V
C744	AE002832	CS0PCH4S2J CC	560 PF 50V CH
C745	AE000838	CS0PB0N16K CC	1 UF 10V B
C746	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C747	AE000838	CS0PB0N16K CC	1 UF 10V B
C748	AE000838	CS0PB0N16K CC	1 UF 10V B
C749	AE001734	CS0PCH4U2J CC	680 PF 50V CH
C750	AE001544	E50HU3100M CE	10 UF 25 V
C751	BZ110263	E50HU2220M CE	22 UF 16 V
C752	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C753	AE001770	E50HU54R7M CE	4.7 UF 50V
C754	BZ110150	E50HU0101M CE	100 UF 6.3V

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C755	AE001726	CS0PB0414K CC	0.01 UF 50V B
C756	AE001544	E50HU3100M CE	10 UF 25 V
C757	AE001728	CS0PB04Q3K CC	0.0047UF 50V B
C758	AE001770	E50HU54R7M CE	4.7 UF 50V
C759	BZ110263	E50HU2220M CE	22 UF 16 V
C760	AE001726	CS0PB0414K CC	0.01 UF 50V B
C761	AE001726	CS0PB0414K CC	0.01 UF 50V B
C762	BZ110263	E50HU2220M CE	22 UF 16 V
C763	AE001726	CS0PB0414K CC	0.01 UF 50V B
C764	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C765	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C766	AE001770	E50HU54R7M CE	4.7 UF 50V
C767	AE001728	CS0PB04Q3K CC	0.0047UF 50V B
C768	BZ110150	E50HU0101M CE	100 UF 6.3V
C770	AE001726	CS0PB0414K CC	0.01 UF 50V B
C771	AE001544	E50HU3100M CE	10 UF 25 V
C772	AE001544	E50HU3100M CE	10 UF 25 V
C773	AE001544	E50HU3100M CE	10 UF 25 V
C774	AE001544	E50HU3100M CE	10 UF 25 V
C775	AE001544	E50HU3100M CE	10 UF 25 V
C801	AE001544	E50HU3100M CE	10 UF 25 V
C802	BZ110217	E50HU53R3M CE	3.3 UF 50V
C803	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C804	AD301762	E50HU52R2M CE	2.2 UF 50V
C805	AE002100	E50HU5R33M CE	0.33 UF 50 V
C806	AE002124	CS0PB0315K CC	0.1 UF 25V B
C808	AE001543	E50HU0470M CE	47 UF 6.3V
C809	AE002124	CS0PB0315K CC	0.1 UF 25V B
C810	AE000835	CS0PB03L4K CC	0.033 UF 25V B
C811	AE002100	E50HU5R33M CE	0.33 UF 50 V
C812	AE002124	CS0PB0315K CC	0.1 UF 25V B
C813	AE001770	E50HU54R7M CE	4.7 UF 50V
C814	AE002492	CS0PB02H5K CC	0.22 UF 16V B
C816	AD301762	E50HU52R2M CE	2.2 UF 50V
C817	AD301762	E50HU52R2M CE	2.2 UF 50V
C818	AD301762	E50HU52R2M CE	2.2 UF 50V
C820	AE001543	E50HU0470M CE	47 UF 6.3V
C821	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C822	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C1701	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C1703	BZ110263	E50HU2220M CE	22 UF 16 V
C1704	AD301535	E02LU2101M CE	100 UF 16V
C1705	BZ110263	E50HU2220M CE	22 UF 16 V
C1706	BZ210177	E02LU2470M CE	47 UF 16V
C1707	BZ110263	E50HU2220M CE	22 UF 16 V
C1708	AD301535	E02LU2101M CE	100 UF 16V
C1709	AE001544	E50HU3100M CE	10 UF 25 V
C1710	BZ210177	E02LU2470M CE	47 UF 16V
C3003	AE001766	E02LT4331M CE	330 UF 35V
C3004	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3005	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3006	AE001544	E50HU3100M CE	10 UF 25 V
C3007	AE001728	CS0PB04Q3K CC	0.0047UF 50V B
C3009	AE002124	CS0PB0315K CC	0.1 UF 25V B
C3010	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3011	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C3014	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3015	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C3016	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3017	AE002124	CS0PB0315K CC	0.1 UF 25V B
C3018	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3019	BZ110263	E50HU2220M CE	22 UF 16 V
C3020	AE002124	CS0PB0315K CC	0.1 UF 25V B
C3021	BZ110263	E50HU2220M CE	22 UF 16 V
C3022	AE001543	E50HU0470M CE	47 UF 6.3V
C3023	AE001735	CS0PCH4W2J CC	820 PF 50V CH
C3024	79091061	CS0PCH4G1J CC	18 PF 50V CH
C3025	79091061	CS0PCH4G1J CC	18 PF 50V CH
C3026	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3027	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C3028	AE002124	CS0PB0315K CC	0.1 UF 25V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C3029	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3030	AE001726	CS0PB0414K CC	0.01 UF 50V B
C3031	AE002822	CS0PB04E3K CC	0.0015UF 50V B
C3032	AE001543	E50HU0470M CE	47 UF 6.3V
C3033	AE002129	CS0PCH4E1J CC	15 PF 50V CH
C3034	AE000838	CS0PB0N16K CC	1 UF 10V B
C3035	79091061	CS0PCH4G1J CC	18 PF 50V CH
C3036	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C3037	AE002831	CS0PCH4Q2J CC	470 PF 50V CH
C3039	AD301762	E50HU52R2M CE	2.2 UF 50V
C3040	AE000958	E50HU5R47M CE	0.47 UF 50V
C3042	AE002124	CS0PB0315K CC	0.1 UF 25V B
C3043	AE000838	CS0PB0N16K CC	1 UF 10V B
C3044	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3046	AE001544	E50HU3100M CE	10 UF 25 V
C3049	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3050	BZ110143	E02LU0221M CE	220 UF 6.3V
C3051	AE005023	E55XTP473Z CE	0.047 F 5.5V
C3052	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3053	AE002822	CS0PB04E3K CC	0.0015UF 50V B
C3054	AE000838	CS0PB0N16K CC	1 UF 10V B
C3055	AE001729	CS0PCH412J CC	100 PF 50V CH
C3056	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3057	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3061	AE002491	CQGTCH413J CC	0.001 UF 50V CH
C3062	AE007258	CS0PB0NH6K CC	2.2 UF 10V B
C3063	AE001769	E50HU1330M CE	33 UF 10 V
C3064	BZ110217	E50HU53R3M CE	3.3 UF 50V
C4001	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4002	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4003	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4004	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4005	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4006	AE006604	E61UM0470D CE	47 UF 6.3V
C4007	AE006604	E61UM0470D CE	47 UF 6.3V
C4008	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4009	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4010	AE006604	E61UM0470D CE	47 UF 6.3V
C4011	AE006604	E61UM0470D CE	47 UF 6.3V
C4012	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4013	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4014	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4015	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4016	AE005073	E61UM2100D CE	10 UF 16V
C4017	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4018	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4019	AE005073	E61UM2100D CE	10 UF 16V
C4020	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4021	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4022	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4023	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4024	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4025	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4026	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4027	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4028	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4029	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4030	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4031	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4032	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4033	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4034	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4035	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4036	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4037	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4038	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4039	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4040	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4041	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4042	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4043	AE001726	CS0PB0414K CC	0.01 UF 50V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C4044	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4045	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4046	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4047	AE005073	E61UM2100D CE	10 UF 16V
C4048	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4049	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4050	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4051	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4052	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4053	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4054	AE006604	E61UM0470D CE	47 UF 6.3V
C4055	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4056	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4057	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4058	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4059	AE006604	E61UM0470D CE	47 UF 6.3V
C4060	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4061	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4062	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4063	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4064	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4065	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4066	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4067	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4068	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4069	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4070	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4071	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4072	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4073	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4074	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4075	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4076	AE006604	E61UM0470D CE	47 UF 6.3V
C4077	AE006604	E61UM0470D CE	47 UF 6.3V
C4078	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4079	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4080	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4081	AE006604	E61UM0470D CE	47 UF 6.3V
C4082	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4083	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4084	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4085	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4086	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4087	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4088	AE002131	CS0PF0414Z CC	0.01 UF 50V F
C4089	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4090	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4091	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4092	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4093	AE006604	E61UM0470D CE	47 UF 6.3V
C4094	AE006604	E61UM0470D CE	47 UF 6.3V
C4095	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4096	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4097	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4098	AE006604	E61UM0470D CE	47 UF 6.3V
C4099	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4100	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4101	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4102	AE006604	E61UM0470D CE	47 UF 6.3V
C4103	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4104	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4105	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4106	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4107	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4108	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4109	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4110	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4113	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4114	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4115	AE001732	CS0PCH4H1J CC	22 PF 50V CH
C4116	AE001275	CS0PF0415Z CC	0.1 UF 50V F

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C4117	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4118	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4119	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4120	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4121	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4122	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4123	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4125	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4128	AE006604	E61UM0470D CE	47 UF 6.3V
C4129	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4130	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4134	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4135	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4136	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4137	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4138	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4139	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4140	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4141	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4142	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4143	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4144	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4145	AE006604	E61UM0470D CE	47 UF 6.3V
C4146	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4147	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4150	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4151	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4152	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4153	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4154	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4155	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4156	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4157	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4158	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4159	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4160	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4161	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4162	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4163	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4164	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4165	AE001725	CS0PB0413K CC	0.001 UF 50V B
C7301	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7302	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7303	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7304	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7305	AE005073	E61UM2100D CE	10 UF 16V
C7306	AE002124	CS0PB0315K CC	0.1 UF 25V B
C7307	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7308	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7309	AE001726	CS0PB0414K CC	0.01 UF 50V B
C7310	AE002124	CS0PB0315K CC	0.1 UF 25V B
C7311	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7312	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7313	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7314	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7315	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7316	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7317	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7318	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7319	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7320	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7321	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7322	AE006604	E61UM0470D CE	47 UF 6.3V
C7323	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7324	AE005073	E61UM2100D CE	10 UF 16V
C7325	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7328	AE005073	E61UM2100D CE	10 UF 16V
C7329	AE005073	E61UM2100D CE	10 UF 16V
C7330	AE001725	CS0PB0413K CC	0.001 UF 50V B
C7331	AE002124	CS0PB0315K CC	0.1 UF 25V B
C7332	AE000838	CS0PB0N16K CC	1 UF 10V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C7334	AE000838	CS0PB0N16K CC	1 UF 10V B
C7336	AE000838	CS0PB0N16K CC	1 UF 10V B
C7337	AE000838	CS0PB0N16K CC	1 UF 10V B
C7338	AE000838	CS0PB0N16K CC	1 UF 10V B
C7339	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7340	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7341	AE000838	CS0PB0N16K CC	1 UF 10V B
C7342	AE001729	CS0PCH412J CC	100 PF 50V CH
C7343	AE001729	CS0PCH412J CC	100 PF 50V CH
C7344	AE001729	CS0PCH412J CC	100 PF 50V CH
C7346	AE000838	CS0PB0N16K CC	1 UF 10V B
C7347	AE000838	CS0PB0N16K CC	1 UF 10V B
C7348	AE001729	CS0PCH412J CC	100 PF 50V CH
C7349	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7350	AE005073	E61UM2100D CE	10 UF 16V
C7351	AE002124	CS0PB0315K CC	0.1 UF 25V B
C7355	AE002130	CS0PCH4Q1J CC	47 PF 50V CH
C7356	AE002130	CS0PCH4Q1J CC	47 PF 50V CH
C7357	AE002130	CS0PCH4Q1J CC	47 PF 50V CH
C7358	AE004236	CS0PB0NQ5K CC	0.47 UF 10V B
C7359	AE004236	CS0PB0NQ5K CC	0.47 UF 10V B
C7360	AE004236	CS0PB0NQ5K CC	0.47 UF 10V B
C7361	79091068	CS0PCH4S1J CC	56 PF 50V CH
C7362	79091068	CS0PCH4S1J CC	56 PF 50V CH
C7363	79091068	CS0PCH4S1J CC	56 PF 50V CH
C7364	AE003857	CS0PCH4W1J CC	82 PF 50V CH
C7365	AE003857	CS0PCH4W1J CC	82 PF 50V CH
C7366	AE003857	CS0PCH4W1J CC	82 PF 50V CH
C7367	AE006604	E61UM0470D CE	47 UF 6.3V
C7368	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7369	AE006604	E61UM0470D CE	47 UF 6.3V
C7370	AE006604	E61UM0470D CE	47 UF 6.3V
C7371	79091061	CS0PCH4G1J CC	18 PF 50V CH
C7372	79091061	CS0PCH4G1J CC	18 PF 50V CH
C7373	79091061	CS0PCH4G1J CC	18 PF 50V CH
C7374	AE001729	CS0PCH412J CC	100 PF 50V CH
C8001	AE000332	E00NU2100M CE	10 UF 16 V
C8002	AE000332	E00NU2100M CE	10 UF 16 V
C8003	AE002124	CS0PB0315K CC	0.1 UF 25V B
C8005	BZ210177	E02LU2470M CE	47 UF 16V
C8006	AE000838	CS0PB0N16K CC	1 UF 10V B
C8007	BZ110189	E02LU0471M CE	470 UF 6.3V
C8009	BZ110189	E02LU0471M CE	470 UF 6.3V
C8014	BZ110263	E50HU2220M CE	22 UF 16 V
C8015	BZ110263	E50HU2220M CE	22 UF 16 V
C8016	AE001729	CS0PCH412J CC	100 PF 50V CH
C8017	AE002124	CS0PB0315K CC	0.1 UF 25V B
C8019	BZ110189	E02LU0471M CE	470 UF 6.3V
C8021	BZ110189	E02LU0471M CE	470 UF 6.3V
C8023	BZ110189	E02LU0471M CE	470 UF 6.3V
C8025	AE001543	E50HU0470M CE	47 UF 6.3V
C8026	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C8027	BZ110081	E02LT2471M CE	470 UF 16V
C8029	BZ110189	E02LU0471M CE	470 UF 6.3V
C8030	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8034	AE001543	E50HU0470M CE	47 UF 6.3V
C8037	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8038	AE000838	CS0PB0N16K CC	1 UF 10V B
C8303	BZ110263	E50HU2220M CE	22 UF 16 V
C8304	BZ110263	E50HU2220M CE	22 UF 16 V
C8305	AE001770	E50HU54R7M CE	4.7 UF 50V
C8306	AE001770	E50HU54R7M CE	4.7 UF 50V
C8307	AE001544	E50HU3100M CE	10 UF 25 V
C8308	AE001770	E50HU54R7M CE	4.7 UF 50V
C8309	AE001770	E50HU54R7M CE	4.7 UF 50V
C8310	AE001544	E50HU3100M CE	10 UF 25 V
C8311	AE001731	CS0PCH4G2J CC	180 PF 50V CH
C8312	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8313	BZ210177	E02LU2470M CE	47 UF 16V
C8314	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8315	AE002130	CS0PCH4Q1J CC	47 PF 50V CH

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
CAPACITORS				
C8316	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8317	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8318	AE003855	CS0PCH4B2J	CC	120 PF 50V CH
C8319	AE001729	CS0PCH412J	CC	100 PF 50V CH
C8320	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8322	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8323	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C8324	BZ210177	E02LU2470M	CE	47 UF 16V
C8326	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C8327	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8328	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8329	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8331	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8332	AE001543	E50HU0470M	CE	47 UF 6.3V
C8334	BZ210177	E02LU2470M	CE	47 UF 16V
C8335	BZ210177	E02LU2470M	CE	47 UF 16V
C8336	AE003874	E00NU53R3M	CE	3.3 UF 50 V
C8337	AE000272	E50HU2470M	CE	47 UF 16V
C8338	BZ210177	E02LU2470M	CE	47 UF 16V
C8339	BZ210177	E02LU2470M	CE	47 UF 16V
C8340	BZ210177	E02LU2470M	CE	47 UF 16V
C8343	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8344	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8345	AE005081	E62KU4220M	CE	22 UF 35V
C8348	BZ110143	E02LU0221M	CE	220 UF 6.3V
C8349	AE001734	CS0PCH4U2J	CC	680 PF 50V CH
C8350	AE001734	CS0PCH4U2J	CC	680 PF 50V CH
C8351	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8352	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C8353	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8354	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C8355	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8356	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C8357	BZ210177	E02LU2470M	CE	47 UF 16V
C8358	AE001726	CS0PB0414K	CC	0.01 UF 50V B
C8359	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C8360	AE001729	CS0PCH412J	CC	100 PF 50V CH
C8361	AE001729	CS0PCH412J	CC	100 PF 50V CH
C8362	BZ110263	E50HU2220M	CE	22 UF 16 V
C8363	BZ110263	E50HU2220M	CE	22 UF 16 V
C8364	AD301535	E02LU2101M	CE	100 UF 16V
C8365	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C8366	AE001878	E62KU5100M	CE	10 UF 50V
C8367	AE001544	E50HU3100M	CE	10 UF 25 V
C8368	AE001275	CS0PF0415Z	CC	0.1 UF 50V F
C8369	79091097	E50HU2101M	CE	100 UF 16 V
C8370	AE001544	E50HU3100M	CE	10 UF 25 V
C8371	AE001544	E50HU3100M	CE	10 UF 25 V
C8372	AE001544	E50HU3100M	CE	10 UF 25 V
C8373	AE001544	E50HU3100M	CE	10 UF 25 V
C8374	AE001544	E50HU3100M	CE	10 UF 25 V
C8375	AE001544	E50HU3100M	CE	10 UF 25 V
C8376	BZ210177	E02LU2470M	CE	47 UF 16V
C8377	AE002124	CS0PB0315K	CC	0.1 UF 25V B
C8378	AE000838	CS0PB0N16K	CC	1 UF 10V B
DIODES				
D101	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D502	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
△D503	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
D504	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D505	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
△D506	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
△D507	AE001064	D28F31DQ09	DIODE,SCHOTTKY	31DQ09-FC
D509	BZ410103	D2WXGP10J0	DIODE,RECTIFIER	RGP10J-EIC
△D510	BZ410113	D97U02201B	DIODE,ZENER	MTZJ22B T-77
△D512	AE002498	D2LKB340F0	DIODE,SCHOTTKY	SB340FL-6737
D514	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D515	AE005172	D27A85T400	DIODE,SCHOTTKY	RB085T-40
D516	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D517	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
△D518	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
DIODES			
D519	AD300069	D97U02701B	DIODE,ZENER MTZJ27B T-77
D520	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
△D521	AE006060	D28T0ERB20	DIODE,RECTIFIER 10ERB20-TA1B2
△D522	AE006060	D28T0ERB20	DIODE,RECTIFIER 10ERB20-TA1B2
△D523	BZ410037	D97U03301B	DIODE,ZENER MTZJ33B T-77
D524	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
△D525	BZ410010	D28T21DQN9	DIODE,SCHOTTKY 21DQ09N-TA2B1
D529	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D530	AE006394	D28T0ERB60	DIODE,RECTIFIER 10ERB60-TA1B2
D531	BZ410034	D97U01301B	DIODE,ZENER MTZJ13B T-77
△D532	BZ410012	D28TQS04N0	DIODE,SCHOTTKY 11EQS04N-TA1B2
D534	AE006602	D97U02R41B	DIODE,ZENER MTZJ2.4B T-77
D535	BZ410021	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
D536	BZ410021	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
D538	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D601	AD301537	0021E5Q210	LED LTL-1CHGE-002A
D602	AE006568	0021761010	LED SLR-343BBTT32
D603	BZ410022	D97U06R81B	DIODE,ZENER MTZJ6.8B T-77
D701	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D1703	BZ410061	D97U01001B	DIODE,ZENER MTZJ10B T-77
D1704	BZ410086	DD7R0S3550	DIODE,SILICON 1SS355 TE-17
D1705	BZ410086	DD7R0S3550	DIODE,SILICON 1SS355 TE-17
D3001	AD301638	0010E00330	INFRARED LED LTE-3271T-012A-O
D3002	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D3003	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8002	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8003	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8004	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8005	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8006	BZ410012	D28TQS04N0	DIODE,SCHOTTKY 11EQS04N-TA1B2
ICS			
IC101	AD301643	I03F3206M0	IC LA71206M-MPB
△IC501	AD302211	I1KJ9A431A	IC KIA431A-AT
△IC502	AE006610	I1KA78R120	IC KIA278R12PI
△IC503	AE002809	000220002W	PHOTO COUPLER PS2561AL1-1-V(W)
IC601	AE001880	IF4K063150	IC PT6315
IC701	AE004692	I03F670BM0	IC LA72670BM-L-MPB-E
IC801	AE004647	I01FF58320	IC AN5832SA-E1V
△IC1702	AE006606	I0GA9XF010	IC PQ070XF01SZH
△IC1703	AE005180	I1KA98R12A	IC KIA78R12API
△IC1704	AE006606	I0GA9XF010	IC PQ070XF01SZH
IC3001	AE006611	I54F50154A	IC OEC0154A
IC3002	AD301641	I9UF032310	IC PST3231NR
IC3099	AE006626	S2G101HE01	MEMORY DATA BR24L08F-WE2
IC4001	AE006615	ICQM0BGCG0	IC ZR36750BGCG-V
IC4002	AE006627	S2G101HE02	MEMORY DATA BR24L16FJ-WE2
IC4003	AE006613	I97F052290	IC BD5229G-TR
IC4004	AE006616	IF6J08M167	IC MT48LC8M16A2P-7E
IC4005	AE006616	IF6J08M167	IC MT48LC8M16A2P-7E
IC4006	AE006628	S2G101HF01	MEMORY DATA M5M29KT331AVP
IC4007	AE006616	IF6J08M167	IC MT48LC8M16A2P-7E
IC4008	AE006616	IF6J08M167	IC MT48LC8M16A2P-7E
IC4009	AE006614	ICQK0PQCG0	IC ZR35100PQCG
IC4010	AE006612	I5CJ0G1250	IC SN74LVC1G125DCKR
IC7301	AE003584	I17F017530	IC PCM1753DBQR
IC7302	AD301988	I0UF015010	IC MM1501XNRE
IC7303	AE006617	IFJJ0775S0	IC WM8775SEDS/R
IC8301	AE006220	I05FEA45FG	IC TC90A45FG
IC8302	AE006608	I0QF02246M	IC NJM2246M-TE1
IC8303	BZ611104	I0QF02533V	IC NJM2533V(Te2)
IC8304	AE006609	I0UF015060	IC MM1506XNRE
IC8305	AE006609	I0UF015060	IC MM1506XNRE
IC8306	AE006607	I0QF020680	IC NJM2068M(Te1)
IC8307	BZ611139	I0QF02534V	IC NJM2534V(Te2)
IC8308	BZ611139	I0QF02534V	IC NJM2534V(Te2)
IC8309	BZ611139	I0QF02534V	IC NJM2534V(Te2)
IC8310	BZ611139	I0QF02534V	IC NJM2534V(Te2)
TRANSISTORS			
Q101	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q102	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q103	BZ510026	TPYJC05001	COMPOUND TRANSISTOR DTA124EKAT146

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
TRANSISTORS			
Q104	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q105	BZ510073	TAATA12660	TRANSISTOR,SILICON
Q106	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q107	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q108	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q109	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q110	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q302	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
△ Q501	AE002251	T25F035630	FET
△ Q502	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q503	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q504	BZ510077	TAAT012714	TRANSISTOR,SILICON
Q505	AE006629	TDA0016910	TRANSISTOR,SILICON
△ Q506	BZ510077	TAAT012714	TRANSISTOR,SILICON
Q651	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q652	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q1702	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q1703	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
△ Q1705	BZ510077	TAAT012714	TRANSISTOR,SILICON
Q1706	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q1707	BZ510081	TPYJA05001	COMPOUND TRANSISTOR
△ Q1708	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
△ Q1710	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q1711	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
△ Q1712	BZ510057	TAAT01281Y	TRANSISTOR,SILICON
Q1713	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q1717	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q1718	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q1719	BZ510045	TNYJD05001	COMPOUND TRANSISTOR
Q3001	BZ410097	0000M00390	PHOTO TRANSISTOR
Q3002	BZ410097	0000M00390	PHOTO TRANSISTOR
Q3003	BZ410106	0002700680	PHOTO COUPLER
Q3004	BZ410106	0002700680	PHOTO COUPLER
Q3005	BZ410107	0002700690	PHOTO COUPLER
Q3006	BZ410107	0002700690	PHOTO COUPLER
Q3007	BZ510081	TPYJA05001	COMPOUND TRANSISTOR
Q3008	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q3009	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q3010	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8001	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8002	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8003	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8004	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8005	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q8006	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8007	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8008	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8009	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8010	BZ510081	TPYJA05001	COMPOUND TRANSISTOR
Q8011	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8012	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q8013	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8014	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8015	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8016	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8017	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8018	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8019	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8020	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8021	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8022	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8023	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8024	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8025	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8026	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8027	BZ510107	TPAAA05001	COMPOUND TRANSISTOR
Q8028	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8029	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8030	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8031	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8032	BZ510109	TCAA3875SY	TRANSISTOR,SILICON

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
TRANSISTORS			
Q8033	BZ510026	TPYJC05001	COMPOUND TRANSISTOR DTA124EKAT146
Q8034	BZ510021	TNYJC05001	COMPOUND TRANSISTOR DTC124EKAT146
Q8035	BZ510072	TPAAC05002	COMPOUND TRANSISTOR KRA103SRTK
Q8301	BZ510113	T27T030180	FET 2SK3018T106
Q8302	BZ510113	T27T030180	FET 2SK3018T106
Q8303	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q8304	BZ510113	T27T030180	FET 2SK3018T106
Q8305	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q8306	BZ510113	T27T030180	FET 2SK3018T106
Q8307	BZ510113	T27T030180	FET 2SK3018T106
Q8308	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q8309	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q8310	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
COILS & TRANSFORMERS			
L101	AE004672	031626010R	COIL,BIAS OSC 1626010
L102	BZ310041	02167F101J	COIL 100 UH
L104	BZ310039	02167F220J	COIL 22 UH
L105	BZ310039	02167F220J	COIL 22 UH
L106	BZ310039	02167F220J	COIL 22 UH
L107	BZ310039	02167F220J	COIL 22 UH
L108	AE002102	021LA65R6K	COIL 5.6 UH
L109	BZ310039	02167F220J	COIL 22 UH
L301	BZ310039	02167F220J	COIL 22 UH
△ L501	AE006572	029X000113	COIL,LINE FILTER SS24V-K07325
L502	AD301539	02AHB0A0A4	CORE FERRITE W5T_20X10X10A
L503	AD301785	02167E100K	COIL R6-1 10 UH
L504	BZ310141	02167F100J	COIL 10 UH
L506	BZ310150	02167E220K	COIL R7 22 UH
L507	AD301785	02167E100K	COIL R6-1 10 UH
L701	BZ310183	021LA6220J	COIL 22 UH
L703	BZ310039	02167F220J	COIL 22 UH
L704	BZ310183	021LA6220J	COIL 22 UH
L705	BZ310039	02167F220J	COIL 22 UH
L706	BZ310039	02167F220J	COIL 22 UH
L801	BZ310041	02167F101J	COIL 100 UH
L1701	AD301785	02167E100K	COIL R6-1 10 UH
L1702	BZ310040	02167F470J	COIL 47 UH
L3001	AE000773	021LA6120J	COIL 12 UH
L7301	AE006570	0216SD1R0J	COIL 1 UH
L7302	AE006570	0216SD1R0J	COIL 1 UH
L7303	AE006570	0216SD1R0J	COIL 1 UH
L7304	AE006570	0216SD1R0J	COIL 1 UH
L7305	AE006570	0216SD1R0J	COIL 1 UH
L7306	AE006570	0216SD1R0J	COIL 1 UH
L7307	AE006571	0216SD6R8J	COIL 6.8 UH
L7308	AE006571	0216SD6R8J	COIL 6.8 UH
L7309	AE006571	0216SD6R8J	COIL 6.8 UH
L8001	BZ310039	02167F220J	COIL 22 UH
L8002	BZ310041	02167F101J	COIL 100 UH
L8003	BZ310079	021LA6101J	COIL 100 UH
L8301	AD300613	02167F150J	COIL 15 UH
L8302	BZ310141	02167F100J	COIL 10 UH
L8303	BZ310039	02167F220J	COIL 22 UH
L8304	BZ310039	02167F220J	COIL 22 UH
L8305	BZ310039	02167F220J	COIL 22 UH
L8306	BZ310039	02167F220J	COIL 22 UH
L8307	BZ310041	02167F101J	COIL 100 UH
L8308	AE002183	021LA6470J	COIL 47 UH
△ T501	AE006573	0481291184	TRANSFORMER,SWITCHING 81291184
JACKS			
J601	AE006073	060Q421048	RCA JACK AV1-06ADS-2
J602	AE006072	060Q401109	RCA JACK AV1-06AD-4
J603	AE006071	060Q401108	RCA JACK AV1-06AD-3
J655	AE004761	063D700010	JACK MDC-012V1-A_LF
J8001	AE004334	063D700009	JACK MDC-070V-A_LF
J8002	AE002759	060J431020	RCA JACK MSP-213V2-432_NI_LF
J8003	AE002813	063D700008	JACK MDC-070V-B_LF
J8004	AE002760	060J411033	RCA JACK MSP-213V1-732_NI_LF
J8005	AE002758	060J411031	RCA JACK MSP-213V1-432_NI_LF
J8006	AE002761	060J411032	RCA JACK MSP-213V1-652_NI_LF

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
SWITCHES			
SW601	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW603	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW604	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW605	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW606	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW607	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW608	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW609	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW610	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW611	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW612	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW613	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW614	AE001707	0504R01T38	SWITCH TACT EVQ11L05R
SW3001	BZ612016	0508S11001	SWITCH (LEAF) LSA-1144EAU
P.C.BOARD ASSEMBLIES			
PCB010	AE006595	A2G101H010	PCB ASS'Y DME030A
PCB240	AE006596	A2G101H240	PCB ASS'Y DPE005A
PCB270	AE006597	A2G101H270	PCB ASS'Y DEE034A
PCB280	AE006598	A2G101H280	PCB ASS'Y DEE035A
PCBB10	AE006599	A2G101HB10	PCB ASS'Y DME029A
PCBDP0	AE006600	A2G101HDP0	PCB ASS'Y DEE033A
MISCELLANEOUS			
B501	BZ310122	024HT03563	CORE,BEADS W4BRH3.5X6X1.0X2
B651	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B652	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B653	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B654	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B655	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B656	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B657	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B665	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4001	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4002	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4003	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4004	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4005	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4006	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4007	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B4008	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B7302	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B7303	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B7304	AE004602	024HC36001	CORE,BEADS HCB2012K-600T25
B7305	AE004602	024HC36001	CORE,BEADS HCB2012K-600T25
B7306	AE004602	024HC36001	CORE,BEADS HCB2012K-600T25
B7307	AE004602	024HC36001	CORE,BEADS HCB2012K-600T25
B7308	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B8001	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B8002	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
B8301	AE005476	0246C51024	CORE,BEADS MMZ1608R102CT
BT601	AE005640	141R004016	BATTERY,MANGAN GR03X-SP2
CD102	AE004682	122F041508	CORD,JUMPER 2F041508
CD103	AE007029	W9L6012042	FLAT CABLE AWM2468 A WG26 2C BLACK 120MM
△ CD501	AE001245	1209419910	CORD,AC BUSH 9419910
CD502	AE006630	WPL6016038	FLAT CABLE AWM2468 A WG26 16C BLACK 160MM
CD504	AE006584	06C3641203	CORD,CONNECTOR C3641203
CD602	AE007259	W9L6007038	FLAT CABLE AWM2468 A WG26 2C BLACK 70MM
CD652	AE007065	122H070701	CORD,JUMPER 2H070701
CD653	AE007066	122H0B1802	CORD,JUMPER 2H0B1802
CP101	BZ614011	0697290620	CONNECTOR PCB SIDE TOC-C09X-A1
CP102	AE004674	069J740599	CONNECTOR PCB SIDE IMSA-9604S-04C
CP103	AD301649	067U002019	WIRE HOLDER B2013H02-2P
△ CP502	79099128	067U016019	WIRE HOLDER B2013H02-16P
△ CP504	AE003633	069V140339	CONNECTOR PCB SIDE A2544WV2-4P
CP506	BZ614416	069S220629	CONNECTOR PCB SIDE A2001WV2-2P
CP601	AE006576	069EVB3050	CONNECTOR PCB SIDE 00_6232_011_102_800+
CP602	AD301649	067U002019	WIRE HOLDER B2013H02-2P
CP603	AE006575	069EV73050	CONNECTOR PCB SIDE 00_6232_007_102_800+
CP604	AD301649	067U002019	WIRE HOLDER B2013H02-2P
CP651	AE006936	069EVB3030	CONNECTOR PCB SIDE 00_6232_011_006_800+
CP652	AE006574	069EV73030	CONNECTOR PCB SIDE 00_6232_007_006_800+
CD4003	AE006585	06CUJB1401	CORD,CONNECTOR CUJB1401

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
MISCELLANEOUS			
CD6002	AE001243	06CPL02006	CABLE
CD6003	AE006433	06CPBA2006	CORD,RCA PIN
CD7301	AE002453	122H0K1802	CORD,JUMPER
CD7302	AE002453	122H0K1802	CORD,JUMPER
CD7303	AE006592	122H0F1801	CORD,JUMPER
CD7304	AE006583	06C32A2603	CORD,CONNECTOR
CP1701	BZ614213	069S2A0629	CONNECTOR PCB SIDE
CP1702	79099141	069R2G0589	CONNECTOR PCB SIDE
CP3001	BZ614289	06972C0010	CONNECTOR PCB SIDE
CP4006	AE006582	06A9604010	CONNECTOR PCB SIDE
CP4007	AE001188	069S270639	CONNECTOR PCB SIDE
CP7301	AE006579	069EVKT070	CONNECTOR PCB SIDE
CP7302	AE006579	069EVKT070	CONNECTOR PCB SIDE
CP7303	AE006578	069EVFT070	CONNECTOR PCB SIDE
CP7304	BZ614213	069S2A0629	CONNECTOR PCB SIDE
CP8301	AE006581	069JVK0200	CONNECTOR PCB SIDE
CP8302	AE006580	069JVF0200	CONNECTOR PCB SIDE
CP8303	AE006581	069JVK0200	CONNECTOR PCB SIDE
Δ DK4001	AE006594	169100033A	DECK CD
Δ F501	AD302166	081PC04005	FUSE
FH501	AE002634	06710T0009	HOLDER,FUSE
FH502	AE002634	06710T0009	HOLDER,FUSE
Δ ICP501	AE004954	0835C01003	MICRO FUSE
Δ ICP1701	AE006587	0835C01603	MICRO FUSE
Δ M501	AE006593	1519X56L04	FAN MOTOR
NR4001	AE005937	110P4470M4	R,NETWORK
NR4002	AE005937	110P4470M4	R,NETWORK
NR4003	AE005937	110P4470M4	R,NETWORK
NR4004	AE005937	110P4470M4	R,NETWORK
NR4005	AE005937	110P4470M4	R,NETWORK
NR4006	AE005937	110P4470M4	R,NETWORK
NR4007	AE005937	110P4470M4	R,NETWORK
NR4008	AE005937	110P4470M4	R,NETWORK
OS601	AE001713	077Q037002	REMOTE RECEIVER
OS8001	AE000830	07AQ000009	OPTICAL DEVICE
TM601	AE006586	076D0KZ010	TRANSMITTER
Δ TU301	AE006569	0162300044	RF UNIT
TR1701	BZ310118	02AHB9A972	CORE,FERRITE
V601	AE006588	096F90R407	TUBE FLUORESCENT DISPLAY
X101	AE001717	100DT3R528	CRYSTAL
X3001	AE004679	100GT01006	CRYSTAL
X3002	BZ613006	100DA32R01	CRYSTAL
X4001	AE006589	100DT02712	CRYSTAL

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R101	AE000360	R002T4561J RC	560 OHM 1/4W
R102	AD302345	R803R9472J RC	4.7K OHM 1/16W
R103	AD302345	R803R9472J RC	4.7K OHM 1/16W
R104	AE002140	R002T4100J RC	10 OHM 1/4W
R105	AE001784	R803R9103J RC	10K OHM 1/16W
R106	AE001801	R803R9682J RC	6.8K OHM 1/16W
R107	AE001893	R803R9332J RC	3.3K OHM 1/16W
R108	AE001891	R803R9223J RC	22K OHM 1/16W
R110	AE001805	R803R9822J RC	8.2K OHM 1/16W
R111	AE001805	R803R9822J RC	8.2K OHM 1/16W
R112	AE001282	R803R9334J RC	330K OHM 1/16W
R113	AE001890	R803R9221J RC	220 OHM 1/16W
R114	AE001891	R803R9223J RC	22K OHM 1/16W
R115	AE002154	R803R9821J RC	820 OHM 1/16W
R116	AE002145	R803R9153J RC	15K OHM 1/16W
R117	AE001801	R803R9682J RC	6.8K OHM 1/16W
R119	AE000849	R803R9152J RC	1.5K OHM 1/16W
R120	AE001783	R803R9102J RC	1K OHM 1/16W
R121	AE001783	R803R9102J RC	1K OHM 1/16W
R122	AE001785	R803R9104J RC	100K OHM 1/16W
R123	BZ210126	R002T4222J RC	2.2K OHM 1/4W
R124	AE001806	R803R9823J RC	82K OHM 1/16W
R125	AE002147	R803R9182J RC	1.8K OHM 1/16W
R126	AE001890	R803R9221J RC	220 OHM 1/16W
R127	AE001802	R803R9684J RC	680K OHM 1/16W
R128	AE001801	R803R9682J RC	6.8K OHM 1/16W
R129	BZ210121	R002T4182J RC	1.8K OHM 1/4W
R130	AE001890	R803R9221J RC	220 OHM 1/16W
R131	AE000849	R803R9152J RC	1.5K OHM 1/16W
R132	AE001893	R803R9332J RC	3.3K OHM 1/16W
R133	AE001805	R803R9822J RC	8.2K OHM 1/16W
R134	AE002871	R803R9224J RC	220K OHM 1/16W
R135	AE002152	R803R9561J RC	560 OHM 1/16W
R136	AE001891	R803R9223J RC	22K OHM 1/16W
R137	AE002150	R803R9333J RC	33K OHM 1/16W
R138	BZ210192	R002T4223J RC	22K OHM 1/4W
R139	AE001788	R803R9123J RC	12K OHM 1/16W
R140	AE001797	R803R9473J RC	47K OHM 1/16W
R141	BZ210124	R002T4122J RC	1.2K OHM 1/4W
R142	AE002154	R803R9821J RC	820 OHM 1/16W
R146	AE001788	R803R9123J RC	12K OHM 1/16W
R147	AE001783	R803R9102J RC	1K OHM 1/16W
R303	AE001797	R803R9473J RC	47K OHM 1/16W
R304	AE001784	R803R9103J RC	10K OHM 1/16W
R305	BZ210119	R002T4102J RC	1K OHM 1/4W
R306	BZ210122	R002T4472J RC	4.7K OHM 1/4W
R307	79091142	R803R9220J RC	22 OHM 1/16W
▲ R501	BZ210219	R0G3K2335K RC	3.3M OHM 1/2W
▲ R502	79099002	R3X181R39J R,METAL OXIDE	0.39 OHM 1W
▲ R503	BZ210206	R002T2155J RC	1.5M OHM 1/2W
▲ R504	AD301141	R3X181561J R,METAL OXIDE	560 OHM 1W
R506	AE001774	R002T2105J RC	1M OHM 1/2W
R507	BZ210182	R002T4103J RC	10K OHM 1/4W
R508	AE000358	R002T4471J RC	470 OHM 1/4W
R509	AD301203	R002T4101J RC	100 OHM 1/4W
R510	BZ210126	R002T4222J RC	2.2K OHM 1/4W
▲ R512	BZ210008	R3X181273J R,METAL OXIDE	27K OHM 1W
R513	AD301203	R002T4101J RC	100 OHM 1/4W
R514	BZ210182	R002T4103J RC	10K OHM 1/4W
▲ R516	AE005735	R63881R22J R,FUSE	0.22 OHM 1W
R517	BZ210119	R002T4102J RC	1K OHM 1/4W
R518	AE000360	R002T4561J RC	560 OHM 1/4W
R519	BZ210119	R002T4102J RC	1K OHM 1/4W
R520	BZ210233	R4X5T6272F R,METAL	2.7K OHM 1/6W
R521	AE000485	R002T4391J RC	390 OHM 1/4W
R522	BZ210233	R4X5T6272F R,METAL	2.7K OHM 1/6W
R523	BZ210119	R002T4102J RC	1K OHM 1/4W
R524	79091119	R002T4331J RC	330 OHM 1/4W
R525	BZ210182	R002T4103J RC	10K OHM 1/4W
R526	AE000360	R002T4561J RC	560 OHM 1/4W
R527	BZ210192	R002T4223J RC	22K OHM 1/4W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R528	BZ210192	R002T4223J RC	22K OHM 1/4W
R529	BZ210182	R002T4103J RC	10K OHM 1/4W
R530	AE000145	R002T2561J RC	560 OHM 1/2W
▲ R531	AE006620	R65584220J R,FUSE	22 OHM 1/4W
▲ R532	AE004370	R3X181121J R,METAL OXIDE	120 OHM 1W
▲ R533	AE006621	R655842R7J R,FUSE	2.7 OHM 1/4W
R534	BZ210119	R002T4102J RC	1K OHM 1/4W
R535	BZ210118	R002T4473J RC	47K OHM 1/4W
R536	BZ210119	R002T4102J RC	1K OHM 1/4W
▲ R538	AE001255	R65584150J R,FUSE	15 OHM 1/4W
R542	BZ210192	R002T4223J RC	22K OHM 1/4W
R601	79091119	R002T4331J RC	330 OHM 1/4W
R602	BZ210135	R002T4221J RC	220 OHM 1/4W
R603	BZ210106	R002T4823J RC	82K OHM 1/4W
R604	BZ210182	R002T4103J RC	10K OHM 1/4W
R605	AE001776	R002T4133J RC	13K OHM 1/4W
R606	BZ210162	R002T4682J RC	6.8K OHM 1/4W
R607	AE001777	R002T4392J RC	3.9K OHM 1/4W
R608	BZ210182	R002T4103J RC	10K OHM 1/4W
R609	BZ210182	R002T4103J RC	10K OHM 1/4W
R610	AD300651	R002T4272J RC	2.7K OHM 1/4W
R611	BZ210060	R002T4332J RC	3.3K OHM 1/4W
R613	AE000937	R002T4151J RC	150 OHM 1/4W
R614	AD301301	R002T4152J RC	1.5K OHM 1/4W
R615	AD301301	R002T4152J RC	1.5K OHM 1/4W
R616	BZ210121	R002T4182J RC	1.8K OHM 1/4W
R617	AD300651	R002T4272J RC	2.7K OHM 1/4W
R618	AE001777	R002T4392J RC	3.9K OHM 1/4W
R619	BZ210162	R002T4682J RC	6.8K OHM 1/4W
R620	AE001776	R002T4133J RC	13K OHM 1/4W
R621	BZ210107	R002T4750J RC	75 OHM 1/4W
R651	79091139	R803R9151J RC	150 OHM 1/16W
R653	AE001803	R803R9750J RC	75 OHM 1/16W
R654	AD302291	R803R9683J RC	68K OHM 1/16W
R655	AE002146	R803R9154J RC	150K OHM 1/16W
R656	AE000485	R002T4391J RC	390 OHM 1/4W
R657	AE001790	R803R9222J RC	2.2K OHM 1/16W
R658	AD302291	R803R9683J RC	68K OHM 1/16W
R659	AE002146	R803R9154J RC	150K OHM 1/16W
R660	AE001790	R803R9222J RC	2.2K OHM 1/16W
R661	AD301203	R002T4101J RC	100 OHM 1/4W
R663	AE001781	R803R9101J RC	100 OHM 1/16W
R664	AE001781	R803R9101J RC	100 OHM 1/16W
R701	BZ210182	R002T4103J RC	10K OHM 1/4W
R702	AE002147	R803R9182J RC	1.8K OHM 1/16W
R703	AE001555	R002T4563J RC	56K OHM 1/4W
R705	AE001555	R002T4563J RC	56K OHM 1/4W
R706	AE000849	R803R9152J RC	1.5K OHM 1/16W
R707	AE001801	R803R9682J RC	6.8K OHM 1/16W
R708	AE001801	R803R9682J RC	6.8K OHM 1/16W
R709	AE001791	R803R9225J RC	2.2M OHM 1/16W
R710	BZ210119	R002T4102J RC	1K OHM 1/4W
R711	AE001892	R803R9331J RC	330 OHM 1/16W
R712	AE001892	R803R9331J RC	330 OHM 1/16W
R713	AE001892	R803R9331J RC	330 OHM 1/16W
R714	AD302291	R803R9683J RC	68K OHM 1/16W
R715	AE004013	R803R9394J RC	390K OHM 1/16W
R716	AE001555	R002T4563J RC	56K OHM 1/4W
R717	AE001801	R803R9682J RC	6.8K OHM 1/16W
R718	AD302345	R803R9472J RC	4.7K OHM 1/16W
R719	AE001555	R002T4563J RC	56K OHM 1/4W
R720	AE001801	R803R9682J RC	6.8K OHM 1/16W
R721	AE002147	R803R9182J RC	1.8K OHM 1/16W
R722	BZ210182	R002T4103J RC	10K OHM 1/4W
R723	AE000849	R803R9152J RC	1.5K OHM 1/16W
R724	BZ210119	R002T4102J RC	1K OHM 1/4W
R725	AE001781	R803R9101J RC	100 OHM 1/16W
R726	AE001781	R803R9101J RC	100 OHM 1/16W
R727	AE001790	R803R9222J RC	2.2K OHM 1/16W
R728	AE001796	R803R9471J RC	470 OHM 1/16W
R729	79091400	R803R9393J RC	39K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R730	AE001783	R803R9102J RC	1K OHM 1/16W
R801	AD301203	R002T4101J RC	100 OHM 1/4W
R802	AD301203	R002T4101J RC	100 OHM 1/4W
R803	AE001893	R803R9332J RC	3.3K OHM 1/16W
R804	AD301203	R002T4101J RC	100 OHM 1/4W
R805	AD301203	R002T4101J RC	100 OHM 1/4W
R806	AE005089	R803R9184J RC	180K OHM 1/16W
R807	AE002532	R803R9272J RC	2.7K OHM 1/16W
R808	AE001801	R803R9682J RC	6.8K OHM 1/16W
R809	AE001781	R803R9101J RC	100 OHM 1/16W
R1704	AE000845	R803R9103F RC	10K OHM 1/16W
R1705	AE005088	R803R9182F RC	1.8K OHM 1/16W
▲ R1706	AE001074	R3X28B1R5J R,METAL OXIDE	1.5 OHM 3W
R1707	AE002906	R803R9153F RC	15K OHM 1/16W
R1708	AE001797	R803R9473J RC	47K OHM 1/16W
R1709	AE001783	R803R9102J RC	1K OHM 1/16W
R1710	AE000845	R803R9103F RC	10K OHM 1/16W
R1711	AE006622	R803R9392F RC	3.9K OHM 1/16W
R1712	AE006624	R803R9561F RC	560 OHM 1/16W
R1713	AD302345	R803R9472J RC	4.7K OHM 1/16W
R1714	AE002598	R002T2562J RC	5.6K OHM 1/2W
R1715	AE001797	R803R9473J RC	47K OHM 1/16W
▲ R1716	BZ210253	R002T2151J RC	150 OHM 1/2W
R1717	AE001796	R803R9471J RC	470 OHM 1/16W
R1719	BZ210122	R002T4472J RC	4.7K OHM 1/4W
R1720	AE001891	R803R9223J RC	22K OHM 1/16W
R1721	BZ210122	R002T4472J RC	4.7K OHM 1/4W
R1722	BZ210119	R002T4102J RC	1K OHM 1/4W
R1723	AE001891	R803R9223J RC	22K OHM 1/16W
R1727	AE006619	R002T28R2J RC	8.2 OHM 1/2W
R1728	AE001783	R803R9102J RC	1K OHM 1/16W
R1730	AD302345	R803R9472J RC	4.7K OHM 1/16W
R1731	AE001891	R803R9223J RC	22K OHM 1/16W
R1732	AE001796	R803R9471J RC	470 OHM 1/16W
R1733	AE001796	R803R9471J RC	470 OHM 1/16W
R3001	AE001282	R803R9334J RC	330K OHM 1/16W
R3002	AE000356	R002T4271J RC	270 OHM 1/4W
R3003	AE002149	R803R9274J RC	270K OHM 1/16W
R3004	AE001797	R803R9473J RC	47K OHM 1/16W
R3006	AE001783	R803R9102J RC	1K OHM 1/16W
R3007	AE002152	R803R9561J RC	560 OHM 1/16W
R3008	AE002150	R803R9333J RC	33K OHM 1/16W
R3009	AE001887	R803R9105J RC	1M OHM 1/16W
R3010	AE001801	R803R9682J RC	6.8K OHM 1/16W
R3011	AD301203	R002T4101J RC	100 OHM 1/4W
R3012	AE001891	R803R9223J RC	22K OHM 1/16W
R3013	AE001784	R803R9103J RC	10K OHM 1/16W
R3014	AE002150	R803R9333J RC	33K OHM 1/16W
R3015	AE001891	R803R9223J RC	22K OHM 1/16W
R3016	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3017	AE002152	R803R9561J RC	560 OHM 1/16W
R3018	AE001898	R803R9563J RC	56K OHM 1/16W
R3019	AE002152	R803R9561J RC	560 OHM 1/16W
R3020	AE001898	R803R9563J RC	56K OHM 1/16W
R3021	AE001775	R002T4121J RC	120 OHM 1/4W
R3022	AE001784	R803R9103J RC	10K OHM 1/16W
R3023	AE001797	R803R9473J RC	47K OHM 1/16W
R3024	AE001797	R803R9473J RC	47K OHM 1/16W
R3025	AE001887	R803R9105J RC	1M OHM 1/16W
R3026	AE002146	R803R9154J RC	150K OHM 1/16W
R3027	AE002145	R803R9153J RC	15K OHM 1/16W
R3028	AE001783	R803R9102J RC	1K OHM 1/16W
R3029	AE001783	R803R9102J RC	1K OHM 1/16W
R3030	AE001796	R803R9471J RC	470 OHM 1/16W
R3031	AE001797	R803R9473J RC	47K OHM 1/16W
R3032	BZ210166	R002T4562J RC	5.6K OHM 1/4W
R3033	AE001896	R803R9474J RC	470K OHM 1/16W
R3034	AE001797	R803R9473J RC	47K OHM 1/16W
R3037	AE002148	R803R9183J RC	18K OHM 1/16W
R3038	AE001784	R803R9103J RC	10K OHM 1/16W
R3039	AE001891	R803R9223J RC	22K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R3040	AE001783	R803R9102J RC	1K OHM 1/16W
R3041	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3042	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3043	AE001282	R803R9334J RC	330K OHM 1/16W
R3044	AE001784	R803R9103J RC	10K OHM 1/16W
R3045	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3046	AE001891	R803R9223J RC	22K OHM 1/16W
R3047	AE001893	R803R9332J RC	3.3K OHM 1/16W
R3048	AE001891	R803R9223J RC	22K OHM 1/16W
R3049	AD302345	R803R9472J RC	4.7K OHM 1/16W
R3050	BZ210122	R002T4472J RC	4.7K OHM 1/4W
R3051	BZ210182	R002T4103J RC	10K OHM 1/4W
R3052	AD302345	R803R9472J RC	4.7K OHM 1/16W
R3053	AE001784	R803R9103J RC	10K OHM 1/16W
R3054	AD302345	R803R9472J RC	4.7K OHM 1/16W
R3055	AE001797	R803R9473J RC	47K OHM 1/16W
R3056	AE001891	R803R9223J RC	22K OHM 1/16W
R3057	AD302291	R803R9683J RC	68K OHM 1/16W
R3058	AE002145	R803R9153J RC	15K OHM 1/16W
R4001	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4003	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4005	AE001783	R803R9102J RC	1K OHM 1/16W
R4006	AE001783	R803R9102J RC	1K OHM 1/16W
R4007	AE001783	R803R9102J RC	1K OHM 1/16W
R4008	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4009	AE001895	R803R9392J RC	3.9K OHM 1/16W
R4010	AE001895	R803R9392J RC	3.9K OHM 1/16W
R4011	AE001894	R803R9391F RC	390 OHM 1/16W
R4012	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4014	79091142	R803R9220J RC	22 OHM 1/16W
R4015	AE001781	R803R9101J RC	100 OHM 1/16W
R4016	AE001781	R803R9101J RC	100 OHM 1/16W
R4017	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4018	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4019	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4020	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4021	AE001781	R803R9101J RC	100 OHM 1/16W
R4022	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4023	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4024	AE001283	R803R9470J RC	47 OHM 1/16W
R4025	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4026	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4027	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4028	AE001283	R803R9470J RC	47 OHM 1/16W
R4029	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4030	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4031	AE001783	R803R9102J RC	1K OHM 1/16W
R4032	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4033	AE001783	R803R9102J RC	1K OHM 1/16W
R4034	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4035	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4036	AE001781	R803R9101J RC	100 OHM 1/16W
R4039	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4040	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4041	AE001783	R803R9102J RC	1K OHM 1/16W
R4043	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4044	79091142	R803R9220J RC	22 OHM 1/16W
R4046	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4047	AE001781	R803R9101J RC	100 OHM 1/16W
R4048	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4049	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4053	AE006623	R803R9510J RC	51 OHM 1/16W
R4056	AE006623	R803R9510J RC	51 OHM 1/16W
R4057	AE006623	R803R9510J RC	51 OHM 1/16W
R4058	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4059	79091142	R803R9220J RC	22 OHM 1/16W
R4060	AE006623	R803R9510J RC	51 OHM 1/16W
R4061	AE006623	R803R9510J RC	51 OHM 1/16W
R4062	AE006623	R803R9510J RC	51 OHM 1/16W
R4063	AE006623	R803R9510J RC	51 OHM 1/16W
R4064	AE001799	R803R9562J RC	5.6K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R4066	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4067	AE001784	R803R9103J RC	10K OHM 1/16W
R4068	AE001794	R803R9330J RC	33 OHM 1/16W
R4069	AE001794	R803R9330J RC	33 OHM 1/16W
R4070	AE001794	R803R9330J RC	33 OHM 1/16W
R4071	AE001794	R803R9330J RC	33 OHM 1/16W
R4072	AE001794	R803R9330J RC	33 OHM 1/16W
R4073	AE001794	R803R9330J RC	33 OHM 1/16W
R4074	AE001794	R803R9330J RC	33 OHM 1/16W
R4075	AE001794	R803R9330J RC	33 OHM 1/16W
R4076	AE001794	R803R9330J RC	33 OHM 1/16W
R4077	AE001794	R803R9330J RC	33 OHM 1/16W
R4078	AE001794	R803R9330J RC	33 OHM 1/16W
R4079	AE001794	R803R9330J RC	33 OHM 1/16W
R4080	AE001794	R803R9330J RC	33 OHM 1/16W
R4081	AE001794	R803R9330J RC	33 OHM 1/16W
R4082	AE001794	R803R9330J RC	33 OHM 1/16W
R4083	AE001794	R803R9330J RC	33 OHM 1/16W
R4084	AE004251	R803R9820J RC	82 OHM 1/16W
R4085	79091142	R803R9220J RC	22 OHM 1/16W
R4086	AE004251	R803R9820J RC	82 OHM 1/16W
R4087	AE001794	R803R9330J RC	33 OHM 1/16W
R4088	AE001794	R803R9330J RC	33 OHM 1/16W
R4089	AE001794	R803R9330J RC	33 OHM 1/16W
R4090	AE001794	R803R9330J RC	33 OHM 1/16W
R4091	AE001794	R803R9330J RC	33 OHM 1/16W
R4092	79091142	R803R9220J RC	22 OHM 1/16W
R4093	AE004251	R803R9820J RC	82 OHM 1/16W
R4094	79091142	R803R9220J RC	22 OHM 1/16W
R4095	AE001794	R803R9330J RC	33 OHM 1/16W
R4097	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4098	AE001794	R803R9330J RC	33 OHM 1/16W
R4099	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4100	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4101	AE001794	R803R9330J RC	33 OHM 1/16W
R4102	AE001794	R803R9330J RC	33 OHM 1/16W
R4103	AE001794	R803R9330J RC	33 OHM 1/16W
R4104	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4105	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4106	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4108	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4109	79091142	R803R9220J RC	22 OHM 1/16W
R4110	AE001784	R803R9103J RC	10K OHM 1/16W
R4113	79091142	R803R9220J RC	22 OHM 1/16W
R4114	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4115	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4116	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4117	AE001784	R803R9103J RC	10K OHM 1/16W
R4118	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4119	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4120	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4121	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4122	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4123	AE001783	R803R9102J RC	1K OHM 1/16W
R4124	AE001783	R803R9102J RC	1K OHM 1/16W
R4126	AE001886	R803R9100J RC	10 OHM 1/16W
R4127	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4129	79091142	R803R9220J RC	22 OHM 1/16W
R4130	AE001783	R803R9102J RC	1K OHM 1/16W
R4131	AE001781	R803R9101J RC	100 OHM 1/16W
R4132	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4133	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4134	AE001886	R803R9100J RC	10 OHM 1/16W
R4135	AD302345	R803R9472J RC	4.7K OHM 1/16W
R4139	AE001886	R803R9100J RC	10 OHM 1/16W
R4140	AE001886	R803R9100J RC	10 OHM 1/16W
R5719	AE001784	R803R9103J RC	10K OHM 1/16W
R7302	AE001899	R803R9750F RC	75 OHM 1/16W
R7303	AE001899	R803R9750F RC	75 OHM 1/16W
R7304	AE001899	R803R9750F RC	75 OHM 1/16W
R7305	AD302345	R803R9472J RC	4.7K OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R7306	AD302345	R803R9472J RC	4.7K OHM 1/16W
R7307	AE001899	R803R9750F RC	75 OHM 1/16W
R7308	AE001797	R803R9473J RC	47K OHM 1/16W
R7309	AE001797	R803R9473J RC	47K OHM 1/16W
R7310	AE001785	R803R9104J RC	100K OHM 1/16W
R7311	AE001785	R803R9104J RC	100K OHM 1/16W
R7312	AE001785	R803R9104J RC	100K OHM 1/16W
R7313	AE001899	R803R9750F RC	75 OHM 1/16W
R7314	AE001899	R803R9750F RC	75 OHM 1/16W
R7318	AE001785	R803R9104J RC	100K OHM 1/16W
R7319	AE001785	R803R9104J RC	100K OHM 1/16W
R7320	AE001785	R803R9104J RC	100K OHM 1/16W
R7321	AE001806	R803R9823J RC	82K OHM 1/16W
R7322	AE001806	R803R9823J RC	82K OHM 1/16W
R7323	AE006623	R803R9510J RC	51 OHM 1/16W
R7326	AE006623	R803R9510J RC	51 OHM 1/16W
R7327	AE006623	R803R9510J RC	51 OHM 1/16W
R7331	AE006623	R803R9510J RC	51 OHM 1/16W
R7333	AE006623	R803R9510J RC	51 OHM 1/16W
R7335	AE006623	R803R9510J RC	51 OHM 1/16W
R7337	AE001785	R803R9104J RC	100K OHM 1/16W
R7338	AE001785	R803R9104J RC	100K OHM 1/16W
R7339	AE001785	R803R9104J RC	100K OHM 1/16W
R7340	AE006623	R803R9510J RC	51 OHM 1/16W
R7341	AE006623	R803R9510J RC	51 OHM 1/16W
R7342	AE006623	R803R9510J RC	51 OHM 1/16W
R8001	AE001803	R803R9750J RC	75 OHM 1/16W
R8002	AE002151	R803R9391J RC	390 OHM 1/16W
R8003	AE001803	R803R9750J RC	75 OHM 1/16W
R8004	AE001803	R803R9750J RC	75 OHM 1/16W
R8006	AD302291	R803R9683J RC	68K OHM 1/16W
R8007	AE002146	R803R9154J RC	150K OHM 1/16W
R8008	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8009	AD302291	R803R9683J RC	68K OHM 1/16W
R8010	AE002146	R803R9154J RC	150K OHM 1/16W
R8011	AE001784	R803R9103J RC	10K OHM 1/16W
R8012	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8013	AE001784	R803R9103J RC	10K OHM 1/16W
R8014	AD301203	R002T4101J RC	100 OHM 1/4W
R8015	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8016	AE001801	R803R9682J RC	6.8K OHM 1/16W
R8017	AE001796	R803R9471J RC	470 OHM 1/16W
R8018	AE000358	R002T4471J RC	470 OHM 1/4W
R8019	AE003984	R002T4330J RC	33 OHM 1/4W
R8020	AE000353	R002T2471J RC	470 OHM 1/2W
R8021	AE001803	R803R9750J RC	75 OHM 1/16W
R8022	AE001784	R803R9103J RC	10K OHM 1/16W
R8023	AE001784	R803R9103J RC	10K OHM 1/16W
R8024	AE002533	R803R9681J RC	680 OHM 1/16W
R8025	AE000964	R002T4681J RC	680 OHM 1/4W
R8026	AE002533	R803R9681J RC	680 OHM 1/16W
R8027	AE000964	R002T4681J RC	680 OHM 1/4W
R8028	AE001800	R803R9680J RC	68 OHM 1/16W
R8029	AE001890	R803R9221J RC	220 OHM 1/16W
R8030	AE000849	R803R9152J RC	1.5K OHM 1/16W
R8031	AE001893	R803R9332J RC	3.3K OHM 1/16W
R8032	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8033	AE001796	R803R9471J RC	470 OHM 1/16W
R8034	AE000358	R002T4471J RC	470 OHM 1/4W
R8035	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8036	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8038	AE001801	R803R9682J RC	6.8K OHM 1/16W
R8039	AE001790	R803R9222J RC	2.2K OHM 1/16W
R8040	AE001784	R803R9103J RC	10K OHM 1/16W
R8041	AE001007	R002T4123J RC	12K OHM 1/4W
R8042	BZ210192	R002T4223J RC	22K OHM 1/4W
R8043	BZ210107	R002T4750J RC	75 OHM 1/4W
R8044	BZ210107	R002T4750J RC	75 OHM 1/4W
R8045	AE001797	R803R9473J RC	47K OHM 1/16W
R8301	AE001899	R803R9750F RC	75 OHM 1/16W
R8302	AE001803	R803R9750J RC	75 OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
RESISTORS			
R8303	AE001803	R803R9750J RC	75 OHM 1/16W
R8304	AE000362	R002T4821J RC	820 OHM 1/4W
R8305	AE001781	R803R9101J RC	100 OHM 1/16W
R8306	AE001799	R803R9562J RC	5.6K OHM 1/16W
R8307	AE001781	R803R9101J RC	100 OHM 1/16W
R8308	AE001781	R803R9101J RC	100 OHM 1/16W
R8310	AE001783	R803R9102J RC	1K OHM 1/16W
R8311	AD302345	R803R9472J RC	4.7K OHM 1/16W
R8313	AE001799	R803R9562J RC	5.6K OHM 1/16W
R8314	AE001781	R803R9101J RC	100 OHM 1/16W
R8316	AE001783	R803R9102J RC	1K OHM 1/16W
R8318	AD302345	R803R9472J RC	4.7K OHM 1/16W
R8322	AE002154	R803R9821J RC	820 OHM 1/16W
R8323	AE001781	R803R9101J RC	100 OHM 1/16W
R8324	AE001781	R803R9101J RC	100 OHM 1/16W
R8325	AE001787	R803R9122J RC	1.2K OHM 1/16W
R8326	AE001801	R803R9682J RC	6.8K OHM 1/16W
R8327	BZ210226	R002T4105J RC	1M OHM 1/4W
R8328	AE001783	R803R9102J RC	1K OHM 1/16W
R8329	AE001893	R803R9332J RC	3.3K OHM 1/16W
R8330	AE001783	R803R9102J RC	1K OHM 1/16W
R8332	AE001783	R803R9102J RC	1K OHM 1/16W
R8333	AE001792	R803R9273J RC	27K OHM 1/16W
R8334	AE001792	R803R9273J RC	27K OHM 1/16W
R8335	AE001887	R803R9105J RC	1M OHM 1/16W
R8336	AE001796	R803R9471J RC	470 OHM 1/16W
R8337	AE002154	R803R9821J RC	820 OHM 1/16W
R8338	AE000845	R803R9103F RC	10K OHM 1/16W
R8339	AE000845	R803R9103F RC	10K OHM 1/16W
R8340	AE006624	R803R9561F RC	560 OHM 1/16W
R8341	AE006624	R803R9561F RC	560 OHM 1/16W
R8342	AE006625	R803R9682F RC	6.8K OHM 1/16W
R8343	AE002906	R803R9153F RC	15K OHM 1/16W
R8344	AE006625	R803R9682F RC	6.8K OHM 1/16W
R8345	AE002906	R803R9153F RC	15K OHM 1/16W
R8346	AE001781	R803R9101J RC	100 OHM 1/16W
R8347	AE001781	R803R9101J RC	100 OHM 1/16W
R8348	AE001781	R803R9101J RC	100 OHM 1/16W
R8349	AE001781	R803R9101J RC	100 OHM 1/16W
R8350	AE000487	R002T4560J RC	56 OHM 1/4W
R8351	AE001891	R803R9223J RC	22K OHM 1/16W
R8352	AE001801	R803R9682J RC	6.8K OHM 1/16W
CAPACITORS			
C101	AE001773	P232W1223J CMP	0.022 UF 100V MMTS
C103	AE001543	E50HU0470M CE	47 UF 6.3V
C104	BZ110143	E02LU0221M CE	220 UF 6.3V
C105	BZ110263	E50HU2220M CE	22 UF 16 V
C106	AE001726	CS0PB0414K CC	0.01 UF 50V B
C107	AE002126	CS0PB04E4K CC	0.015 UF 50V B
C109	AE002124	CS0PB0315K CC	0.1 UF 25V B
C110	AE001543	E50HU0470M CE	47 UF 6.3V
C111	AE001732	CS0PCH4H1J CC	22 PF 50V CH
C112	AE001768	E50HU0221M CE	220 UF 6.3V
C114	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C115	AE001769	E50HU1330M CE	33 UF 10 V
C116	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C118	AE001726	CS0PB0414K CC	0.01 UF 50V B
C119	AE001544	E50HU3100M CE	10 UF 25 V
C120	AE000838	CS0PB0N16K CC	1 UF 10V B
C121	AE001273	CS0PB04K3K CC	0.0027UF 50V B
C122	AE002125	CS0PB04B3K CC	0.0012UF 50V B
C123	AE001770	E50HU54R7M CE	4.7 UF 50V
C124	BZ110074	E50HU5010M CE	1 UF 50V
C125	AE001274	CS0PCH4N2J CC	390 PF 50V CH
C126	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C127	AE001731	CS0PCH4G2J CC	180 PF 50V CH
C130	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C131	AE000336	E02LU1101M CE	100 UF 10V
C132	BZ110074	E50HU5010M CE	1 UF 50V
C133	AE000838	CS0PB0N16K CC	1 UF 10V B
C134	AE000838	CS0PB0N16K CC	1 UF 10V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C135	AE001771	E50HU5R22M CE	0.22 UF 50 V
C136	BZ110263	E50HU2220M CE	22 UF 16 V
C137	AE000838	CS0PB0N16K CC	1 UF 10V B
C138	AE000838	CS0PB0N16K CC	1 UF 10V B
C139	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C140	AE001544	E50HU3100M CE	10 UF 25 V
C141	AE001726	CS0PB0414K CC	0.01 UF 50V B
C142	AE001543	E50HU0470M CE	47 UF 6.3V
C143	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C144	AE001726	CS0PB0414K CC	0.01 UF 50V B
C145	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C146	AE000838	CS0PB0N16K CC	1 UF 10V B
C147	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C148	AE000838	CS0PB0N16K CC	1 UF 10V B
C151	AE000838	CS0PB0N16K CC	1 UF 10V B
C152	BZ210177	E02LU2470M CE	47 UF 16V
C153	AE002493	CS0PB04L3K CC	0.0033UF 50V B
C154	AE002124	CS0PB0315K CC	0.1 UF 25V B
C156	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C157	AE000838	CS0PB0N16K CC	1 UF 10V B
C158	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C159	AE001726	CS0PB0414K CC	0.01 UF 50V B
C160	AE001544	E50HU3100M CE	10 UF 25 V
C161	AE007062	E00NU1220M CE	22 UF 10 V
C162	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C163	AE001543	E50HU0470M CE	47 UF 6.3V
C165	AE002132	CS0PF04Q4Z CC	0.047 UF 50V F
C166	AE003843	CS0PB02U4K CC	0.068 UF 16V B
C167	AE001729	CS0PCH412J CC	100 PF 50V CH
C169	AE002132	CS0PF04Q4Z CC	0.047 UF 50V F
C172	AE001878	E62KU5100M CE	10 UF 50V
C173	AE001544	E50HU3100M CE	10 UF 25 V
C176	AE001732	CS0PCH4H1J CC	22 PF 50V CH
C301	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C302	BZ110189	E02LU0471M CE	470 UF 6.3V
C306	AE001729	CS0PCH412J CC	100 PF 50V CH
C308	AE001770	E50HU54R7M CE	4.7 UF 50V
C309	AE001726	CS0PB0414K CC	0.01 UF 50V B
C311	AE001770	E50HU54R7M CE	4.7 UF 50V
C315	AE001770	E50HU54R7M CE	4.7 UF 50V
▲ C501	AE006603	E61FF3102D CE	1000 UF 25V
▲ C502	BZ110035	P2122B104M CMP	0.1 UF 275V ECQUL
C503	AE000951	CQGTCH4Q2J CC	470 PF 50V CH
C504	BZ110035	P2122B104M CMP	0.1 UF 275V ECQUL
▲ C505	BZ110043	E02LU3221M CE	220 UF 25V
C508	AE006618	P1F4T0103J CP	0.01 UF 50V
C509	AE001281	P1F4T0183J CP	0.018 UF 50V
▲ C510	BZ110041	E02LT3471M CE	470 UF 25V
▲ C511	AE006605	E62PFC331M CE	330 UF 200V
C512	AE002819	CQGTB04W3K CC	0.0082UF 50V B
C513	BZ110202	C0PLRR713K CC	0.001 UF 2KV R
C515	AE001722	C0J0B0514K CC	0.01 UF 500V B
▲ C516	AE002878	CD39E0MQ3M CC	0.0047UF 250V
▲ C517	BZ110143	E02LU0221M CE	220 UF 6.3V
▲ C518	AE005174	E61FF1222D CE	2200 UF 10V
▲ C519	AE005174	E61FF1222D CE	2200 UF 10V
▲ C521	BZ110188	E50HU5100M CE	10 UF 50V
▲ C522	AD300666	E50HU5220M CE	22 UF 50 V
▲ C523	BZ110043	E02LU3221M CE	220 UF 25V
C524	BZ110243	CQGTB0414K CC	0.01 UF 50V B
C525	BZ110175	C03L0R7H2K CC	220 PF 2KV R
▲ C527	AD301535	E02LU2101M CE	100 UF 16V
C528	AD301535	E02LU2101M CE	100 UF 16V
▲ C529	AD300511	E02LT0222M CE	2200 UF 6.3V
▲ C530	AE000466	E02LU1221M CE	220 UF 10V
▲ C531	BZ110190	E02LU2221M CE	220 UF 16V
C533	BZ110117	CQGTB04Q3K CC	0.0047UF 50V B
C534	BZ110061	C0JTB0513K CC	0.001 UF 500V B
C536	AE001768	E50HU0221M CE	220 UF 6.3V
C538	AD300789	CQGTFO415Z CC	0.1 UF 50V F
C540	79091044	C0JTB05H2K CC	220 PF 500V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C541	AE000922	C0JTB05B3K CC	0.0012UF 500V B
▲C542	AE006601	C0JBB0712K CC	100 PF 2KV B
▲C543	AE006601	C0JBB0712K CC	100 PF 2KV B
C544	AE001769	E50HU1330M CE	33 UF 10 V
C601	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C602	BZ110166	CQGTCH412J CC	100 PF 50V CH
C603	BZ110166	CQGTCH412J CC	100 PF 50V CH
C604	BZ110166	CQGTCH412J CC	100 PF 50V CH
C605	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C606	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C607	AD300789	CQGTF0415Z CC	0.1 UF 50V F
C609	BZ110243	CQGTB0414K CC	0.01 UF 50V B
C610	AE001543	E50HU0470M CE	47 UF 6.3V
C611	BZ110188	E50HU5100M CE	10 UF 50V
C613	BZ110166	CQGTCH412J CC	100 PF 50V CH
C614	BZ110166	CQGTCH412J CC	100 PF 50V CH
C615	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C616	BZ110255	CQGTB0415K CC	0.1 UF 50V B
C653	AE000332	E00NU2100M CE	10 UF 16 V
C654	AE000332	E00NU2100M CE	10 UF 16 V
C655	AD301535	E02LU2101M CE	100 UF 16V
C658	BZ110166	CQGTCH412J CC	100 PF 50V CH
C659	AE001729	CS0PCH412J CC	100 PF 50V CH
C660	AE001729	CS0PCH412J CC	100 PF 50V CH
C701	AE001734	CS0PCH4U2J CC	680 PF 50V CH
C702	AE001726	CS0PB0414K CC	0.01 UF 50V B
C703	BZ110263	E50HU2220M CE	22 UF 16 V
C706	AE002832	CS0PCH4S2J CC	560 PF 50V CH
C707	AE002832	CS0PCH4S2J CC	560 PF 50V CH
C708	AE001770	E50HU54R7M CE	4.7 UF 50V
C709	AE001770	E50HU54R7M CE	4.7 UF 50V
C710	AE001770	E50HU54R7M CE	4.7 UF 50V
C711	AE000838	CS0PB0N16K CC	1 UF 10V B
C712	AE000838	CS0PB0N16K CC	1 UF 10V B
C713	AE000838	CS0PB0N16K CC	1 UF 10V B
C714	AE001770	E50HU54R7M CE	4.7 UF 50V
C715	AE002124	CS0PB0315K CC	0.1 UF 25V B
C716	AE001544	E50HU3100M CE	10 UF 25 V
C717	BZ110263	E50HU2220M CE	22 UF 16 V
C718	AE000838	CS0PB0N16K CC	1 UF 10V B
C719	AE001544	E50HU3100M CE	10 UF 25 V
C722	AE002879	CS0PB03Q4K CC	0.047 UF 25V B
C723	AD301535	E02LU2101M CE	100 UF 16V
C724	AE000838	CS0PB0N16K CC	1 UF 10V B
C725	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C726	AE001770	E50HU54R7M CE	4.7 UF 50V
C727	AD301762	E50HU52R2M CE	2.2 UF 50V
C729	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C730	BZ110150	E50HU0101M CE	100 UF 6.3V
C731	AE001726	CS0PB0414K CC	0.01 UF 50V B
C732	AE001737	CS0PF0N16Z CC	1 UF 10V F
C733	AE000838	CS0PB0N16K CC	1 UF 10V B
C735	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C736	AE000838	CS0PB0N16K CC	1 UF 10V B
C737	79091097	E50HU2101M CE	100 UF 16 V
C738	AE001544	E50HU3100M CE	10 UF 25 V
C739	AE002832	CS0PCH4S2J CC	560 PF 50V CH
C741	AE000838	CS0PB0N16K CC	1 UF 10V B
C742	AE000835	CS0PB03L4K CC	0.033 UF 25V B
C743	AD301762	E50HU52R2M CE	2.2 UF 50V
C744	AE002832	CS0PCH4S2J CC	560 PF 50V CH
C745	AE000838	CS0PB0N16K CC	1 UF 10V B
C746	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C747	AE000838	CS0PB0N16K CC	1 UF 10V B
C748	AE000838	CS0PB0N16K CC	1 UF 10V B
C749	AE001734	CS0PCH4U2J CC	680 PF 50V CH
C750	AE001544	E50HU3100M CE	10 UF 25 V
C751	BZ110263	E50HU2220M CE	22 UF 16 V
C752	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C753	AE001770	E50HU54R7M CE	4.7 UF 50V
C754	BZ110150	E50HU0101M CE	100 UF 6.3V

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C755	AE001726	CS0PB0414K CC	0.01 UF 50V B
C756	AE001544	E50HU3100M CE	10 UF 25 V
C757	AE001728	CS0PB04Q3K CC	0.0047UF 50V B
C758	AE001770	E50HU54R7M CE	4.7 UF 50V
C759	BZ110263	E50HU2220M CE	22 UF 16 V
C760	AE001726	CS0PB0414K CC	0.01 UF 50V B
C761	AE001726	CS0PB0414K CC	0.01 UF 50V B
C762	BZ110263	E50HU2220M CE	22 UF 16 V
C763	AE001726	CS0PB0414K CC	0.01 UF 50V B
C764	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C765	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C766	AE001770	E50HU54R7M CE	4.7 UF 50V
C767	AE001728	CS0PB04Q3K CC	0.0047UF 50V B
C768	BZ110150	E50HU0101M CE	100 UF 6.3V
C770	AE001726	CS0PB0414K CC	0.01 UF 50V B
C771	AE001544	E50HU3100M CE	10 UF 25 V
C772	AE001544	E50HU3100M CE	10 UF 25 V
C773	AE001544	E50HU3100M CE	10 UF 25 V
C774	AE001544	E50HU3100M CE	10 UF 25 V
C775	AE001544	E50HU3100M CE	10 UF 25 V
C801	AE001544	E50HU3100M CE	10 UF 25 V
C802	BZ110217	E50HU53R3M CE	3.3 UF 50V
C803	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C804	AD301762	E50HU52R2M CE	2.2 UF 50V
C805	AE002100	E50HU5R33M CE	0.33 UF 50 V
C806	AE002124	CS0PB0315K CC	0.1 UF 25V B
C808	AE001543	E50HU0470M CE	47 UF 6.3V
C809	AE002124	CS0PB0315K CC	0.1 UF 25V B
C810	AE000835	CS0PB03L4K CC	0.033 UF 25V B
C811	AE002100	E50HU5R33M CE	0.33 UF 50 V
C812	AE002124	CS0PB0315K CC	0.1 UF 25V B
C813	AE001770	E50HU54R7M CE	4.7 UF 50V
C814	AE002492	CS0PB02H5K CC	0.22 UF 16V B
C816	AD301762	E50HU52R2M CE	2.2 UF 50V
C817	AD301762	E50HU52R2M CE	2.2 UF 50V
C818	AD301762	E50HU52R2M CE	2.2 UF 50V
C820	AE001543	E50HU0470M CE	47 UF 6.3V
C821	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C822	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C1701	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C1703	BZ110263	E50HU2220M CE	22 UF 16 V
C1704	AD301535	E02LU2101M CE	100 UF 16V
C1705	BZ110263	E50HU2220M CE	22 UF 16 V
C1706	BZ210177	E02LU2470M CE	47 UF 16V
C1707	BZ110263	E50HU2220M CE	22 UF 16 V
C1708	AD301535	E02LU2101M CE	100 UF 16V
C1709	AE001544	E50HU3100M CE	10 UF 25 V
C1710	BZ210177	E02LU2470M CE	47 UF 16V
C3003	AE001766	E02LT4331M CE	330 UF 35V
C3004	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3005	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3006	AE001544	E50HU3100M CE	10 UF 25 V
C3007	AE001728	CS0PB04Q3K CC	0.0047UF 50V B
C3009	AE002124	CS0PB0315K CC	0.1 UF 25V B
C3010	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3011	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C3014	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3015	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C3016	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3017	AE002124	CS0PB0315K CC	0.1 UF 25V B
C3018	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3019	BZ110263	E50HU2220M CE	22 UF 16 V
C3020	AE002124	CS0PB0315K CC	0.1 UF 25V B
C3021	BZ110263	E50HU2220M CE	22 UF 16 V
C3022	AE001543	E50HU0470M CE	47 UF 6.3V
C3023	AE001735	CS0PCH4W2J CC	820 PF 50V CH
C3024	79091061	CS0PCH4G1J CC	18 PF 50V CH
C3025	79091061	CS0PCH4G1J CC	18 PF 50V CH
C3026	AE001725	CS0PB0413K CC	0.001 UF 50V B
C3027	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C3028	AE002124	CS0PB0315K CC	0.1 UF 25V B

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C3029	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3030	AE001726	CS0PB0414K CC	0.01 UF 50V B
C3031	AE002822	CS0PB04E3K CC	0.0015UF 50V B
C3032	AE001543	E50HU0470M CE	47 UF 6.3V
C3033	AE002129	CS0PCH4E1J CC	15 PF 50V CH
C3034	AE000838	CS0PB0N16K CC	1 UF 10V B
C3035	79091061	CS0PCH4G1J CC	18 PF 50V CH
C3036	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C3037	AE002831	CS0PCH4Q2J CC	470 PF 50V CH
C3039	AD301762	E50HU52R2M CE	2.2 UF 50V
C3040	AE000958	E50HU5R47M CE	0.47 UF 50V
C3042	AE002124	CS0PB0315K CC	0.1 UF 25V B
C3043	AE000838	CS0PB0N16K CC	1 UF 10V B
C3044	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3046	AE001544	E50HU3100M CE	10 UF 25 V
C3049	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3050	BZ110143	E02LU0221M CE	220 UF 6.3V
C3051	AE005023	E55XTP473Z CE	0.047 F 5.5V
C3052	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3053	AE002822	CS0PB04E3K CC	0.0015UF 50V B
C3054	AE000838	CS0PB0N16K CC	1 UF 10V B
C3055	AE001729	CS0PCH412J CC	100 PF 50V CH
C3056	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3057	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C3061	AE002491	CQGTCH413J CC	0.001 UF 50V CH
C3062	AE007258	CS0PB0NH6K CC	2.2 UF 10V B
C3063	AE001769	E50HU1330M CE	33 UF 10 V
C3064	BZ110217	E50HU53R3M CE	3.3 UF 50V
C4001	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4002	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4003	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4004	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4005	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4006	AE006604	E61UM0470D CE	47 UF 6.3V
C4007	AE006604	E61UM0470D CE	47 UF 6.3V
C4008	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4009	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4010	AE006604	E61UM0470D CE	47 UF 6.3V
C4011	AE006604	E61UM0470D CE	47 UF 6.3V
C4012	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4013	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4014	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4015	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4016	AE005073	E61UM2100D CE	10 UF 16V
C4017	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4018	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4019	AE005073	E61UM2100D CE	10 UF 16V
C4020	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4021	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4022	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4023	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4024	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4025	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4026	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4027	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4028	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4029	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4030	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4031	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4032	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4033	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4034	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4035	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4036	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4037	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4038	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4039	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4040	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4041	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4042	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4043	AE001726	CS0PB0414K CC	0.01 UF 50V B

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Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C4044	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4045	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4046	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4047	AE005073	E61UM2100D CE	10 UF 16V
C4048	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4049	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4050	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4051	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4052	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4053	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4054	AE006604	E61UM0470D CE	47 UF 6.3V
C4055	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4056	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4057	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4058	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4059	AE006604	E61UM0470D CE	47 UF 6.3V
C4060	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4061	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4062	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4063	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4064	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4065	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4066	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4067	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4068	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4069	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4070	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4071	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4072	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4073	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4074	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4075	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4076	AE006604	E61UM0470D CE	47 UF 6.3V
C4077	AE006604	E61UM0470D CE	47 UF 6.3V
C4078	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4079	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4080	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4081	AE006604	E61UM0470D CE	47 UF 6.3V
C4082	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4083	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4084	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4085	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4086	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4087	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4088	AE002131	CS0PF0414Z CC	0.01 UF 50V F
C4089	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4090	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4091	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4092	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4093	AE006604	E61UM0470D CE	47 UF 6.3V
C4094	AE006604	E61UM0470D CE	47 UF 6.3V
C4095	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4096	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4097	AE002124	CS0PB0315K CC	0.1 UF 25V B
C4098	AE006604	E61UM0470D CE	47 UF 6.3V
C4099	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4100	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4101	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4102	AE006604	E61UM0470D CE	47 UF 6.3V
C4103	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4104	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4105	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4106	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4107	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4108	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4109	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4110	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4113	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4114	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4115	AE001732	CS0PCH4H1J CC	22 PF 50V CH
C4116	AE001275	CS0PF0415Z CC	0.1 UF 50V F

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Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C4117	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4118	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4119	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4120	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4121	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4122	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4123	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4125	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4128	AE006604	E61UM0470D CE	47 UF 6.3V
C4129	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4130	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4134	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4135	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4136	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4137	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4138	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4139	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4140	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4141	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4142	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4143	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4144	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4145	AE006604	E61UM0470D CE	47 UF 6.3V
C4146	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4147	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4150	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4151	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4152	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4153	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4154	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4155	AE001726	CS0PB0414K CC	0.01 UF 50V B
C4156	AE001725	CS0PB0413K CC	0.001 UF 50V B
C4157	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4158	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4159	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4160	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4161	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4162	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4163	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4164	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C4165	AE001725	CS0PB0413K CC	0.001 UF 50V B
C7301	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7302	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7303	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7304	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7305	AE005073	E61UM2100D CE	10 UF 16V
C7306	AE002124	CS0PB0315K CC	0.1 UF 25V B
C7307	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7308	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7309	AE001726	CS0PB0414K CC	0.01 UF 50V B
C7310	AE002124	CS0PB0315K CC	0.1 UF 25V B
C7311	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7312	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7313	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7314	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7315	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7316	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7317	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7318	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7319	AE003854	CS0PCH4B1J CC	12 PF 50V CH
C7320	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7321	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7322	AE006604	E61UM0470D CE	47 UF 6.3V
C7323	AE001730	CS0PCH4E2J CC	150 PF 50V CH
C7324	AE005073	E61UM2100D CE	10 UF 16V
C7325	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7328	AE005073	E61UM2100D CE	10 UF 16V
C7329	AE005073	E61UM2100D CE	10 UF 16V
C7330	AE001725	CS0PB0413K CC	0.001 UF 50V B
C7331	AE002124	CS0PB0315K CC	0.1 UF 25V B
C7332	AE000838	CS0PB0N16K CC	1 UF 10V B

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Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C7334	AE000838	CS0PB0N16K CC	1 UF 10V B
C7336	AE000838	CS0PB0N16K CC	1 UF 10V B
C7337	AE000838	CS0PB0N16K CC	1 UF 10V B
C7338	AE000838	CS0PB0N16K CC	1 UF 10V B
C7339	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7340	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7341	AE000838	CS0PB0N16K CC	1 UF 10V B
C7342	AE001729	CS0PCH412J CC	100 PF 50V CH
C7343	AE001729	CS0PCH412J CC	100 PF 50V CH
C7344	AE001729	CS0PCH412J CC	100 PF 50V CH
C7346	AE000838	CS0PB0N16K CC	1 UF 10V B
C7347	AE000838	CS0PB0N16K CC	1 UF 10V B
C7348	AE001729	CS0PCH412J CC	100 PF 50V CH
C7349	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7350	AE005073	E61UM2100D CE	10 UF 16V
C7351	AE002124	CS0PB0315K CC	0.1 UF 25V B
C7355	AE002130	CS0PCH4Q1J CC	47 PF 50V CH
C7356	AE002130	CS0PCH4Q1J CC	47 PF 50V CH
C7357	AE002130	CS0PCH4Q1J CC	47 PF 50V CH
C7358	AE004236	CS0PB0NQ5K CC	0.47 UF 10V B
C7359	AE004236	CS0PB0NQ5K CC	0.47 UF 10V B
C7360	AE004236	CS0PB0NQ5K CC	0.47 UF 10V B
C7361	79091068	CS0PCH4S1J CC	56 PF 50V CH
C7362	79091068	CS0PCH4S1J CC	56 PF 50V CH
C7363	79091068	CS0PCH4S1J CC	56 PF 50V CH
C7364	AE003857	CS0PCH4W1J CC	82 PF 50V CH
C7365	AE003857	CS0PCH4W1J CC	82 PF 50V CH
C7366	AE003857	CS0PCH4W1J CC	82 PF 50V CH
C7367	AE006604	E61UM0470D CE	47 UF 6.3V
C7368	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C7369	AE006604	E61UM0470D CE	47 UF 6.3V
C7370	AE006604	E61UM0470D CE	47 UF 6.3V
C7371	79091061	CS0PCH4G1J CC	18 PF 50V CH
C7372	79091061	CS0PCH4G1J CC	18 PF 50V CH
C7373	79091061	CS0PCH4G1J CC	18 PF 50V CH
C7374	AE001729	CS0PCH412J CC	100 PF 50V CH
C8001	AE000332	E00NU2100M CE	10 UF 16 V
C8002	AE000332	E00NU2100M CE	10 UF 16 V
C8003	AE002124	CS0PB0315K CC	0.1 UF 25V B
C8005	BZ210177	E02LU2470M CE	47 UF 16V
C8006	AE000838	CS0PB0N16K CC	1 UF 10V B
C8007	BZ110189	E02LU0471M CE	470 UF 6.3V
C8009	BZ110189	E02LU0471M CE	470 UF 6.3V
C8014	BZ110263	E50HU2220M CE	22 UF 16 V
C8015	BZ110263	E50HU2220M CE	22 UF 16 V
C8016	AE001729	CS0PCH412J CC	100 PF 50V CH
C8017	AE002124	CS0PB0315K CC	0.1 UF 25V B
C8019	BZ110189	E02LU0471M CE	470 UF 6.3V
C8021	BZ110189	E02LU0471M CE	470 UF 6.3V
C8023	BZ110189	E02LU0471M CE	470 UF 6.3V
C8025	AE001543	E50HU0470M CE	47 UF 6.3V
C8026	AE002824	CS0PB04H4K CC	0.022 UF 50V B
C8027	BZ110081	E02LT2471M CE	470 UF 16V
C8029	BZ110189	E02LU0471M CE	470 UF 6.3V
C8030	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8034	AE001543	E50HU0470M CE	47 UF 6.3V
C8037	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8038	AE000838	CS0PB0N16K CC	1 UF 10V B
C8303	BZ110263	E50HU2220M CE	22 UF 16 V
C8304	BZ110263	E50HU2220M CE	22 UF 16 V
C8305	AE001770	E50HU54R7M CE	4.7 UF 50V
C8306	AE001770	E50HU54R7M CE	4.7 UF 50V
C8307	AE001544	E50HU3100M CE	10 UF 25 V
C8308	AE001770	E50HU54R7M CE	4.7 UF 50V
C8309	AE001770	E50HU54R7M CE	4.7 UF 50V
C8310	AE001544	E50HU3100M CE	10 UF 25 V
C8311	AE001731	CS0PCH4G2J CC	180 PF 50V CH
C8312	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8313	BZ210177	E02LU2470M CE	47 UF 16V
C8314	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8315	AE002130	CS0PCH4Q1J CC	47 PF 50V CH

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
CAPACITORS			
C8316	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8317	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8318	AE003855	CS0PCH4B2J CC	120 PF 50V CH
C8319	AE001729	CS0PCH412J CC	100 PF 50V CH
C8320	AE002124	CS0PB0315K CC	0.1 UF 25V B
C8322	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8323	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8324	BZ210177	E02LU2470M CE	47 UF 16V
C8326	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8327	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8328	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8329	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8331	AE002124	CS0PB0315K CC	0.1 UF 25V B
C8332	AE001543	E50HU0470M CE	47 UF 6.3V
C8334	BZ210177	E02LU2470M CE	47 UF 16V
C8335	BZ210177	E02LU2470M CE	47 UF 16V
C8336	AE003874	E00NU53R3M CE	3.3 UF 50V
C8337	AE000272	E50HU2470M CE	47 UF 16V
C8338	BZ210177	E02LU2470M CE	47 UF 16V
C8339	BZ210177	E02LU2470M CE	47 UF 16V
C8340	BZ210177	E02LU2470M CE	47 UF 16V
C8343	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8344	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8345	AE005081	E62KU4220M CE	22 UF 35V
C8348	BZ110143	E02LU0221M CE	220 UF 6.3V
C8349	AE001734	CS0PCH4U2J CC	680 PF 50V CH
C8350	AE001734	CS0PCH4U2J CC	680 PF 50V CH
C8351	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8352	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8353	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8354	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8355	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8356	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8357	BZ210177	E02LU2470M CE	47 UF 16V
C8358	AE001726	CS0PB0414K CC	0.01 UF 50V B
C8359	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8360	AE001729	CS0PCH412J CC	100 PF 50V CH
C8361	AE001729	CS0PCH412J CC	100 PF 50V CH
C8362	BZ110263	E50HU2220M CE	22 UF 16 V
C8363	BZ110263	E50HU2220M CE	22 UF 16 V
C8364	AD301535	E02LU2101M CE	100 UF 16V
C8365	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8366	AE001878	E62KU5100M CE	10 UF 50V
C8367	AE001544	E50HU3100M CE	10 UF 25 V
C8368	AE001275	CS0PF0415Z CC	0.1 UF 50V F
C8369	79091097	E50HU2101M CE	100 UF 16 V
C8370	AE001544	E50HU3100M CE	10 UF 25 V
C8371	AE001544	E50HU3100M CE	10 UF 25 V
C8372	AE001544	E50HU3100M CE	10 UF 25 V
C8373	AE001544	E50HU3100M CE	10 UF 25 V
C8374	AE001544	E50HU3100M CE	10 UF 25 V
C8375	AE001544	E50HU3100M CE	10 UF 25 V
C8376	BZ210177	E02LU2470M CE	47 UF 16V
C8377	AE002124	CS0PB0315K CC	0.1 UF 25V B
C8378	AE000838	CS0PB0N16K CC	1 UF 10V B
DIODES			
D101	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
▲D502	BZ410062	D2WTRM11C0	DIODE,SILICON RM11C-EIC
▲D503	BZ410062	D2WTRM11C0	DIODE,SILICON RM11C-EIC
D504	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
▲D505	BZ410062	D2WTRM11C0	DIODE,SILICON RM11C-EIC
▲D506	BZ410062	D2WTRM11C0	DIODE,SILICON RM11C-EIC
▲D507	AE001064	D28F31DQ09	DIODE,SCHOTTKY 31DQ09-FC
D509	BZ410103	D2WXGP10J0	DIODE,RECTIFIER RGP10J-EIC
▲D510	BZ410113	D97U02201B	DIODE,ZENER MTZJ22B T-77
▲D512	AE002498	D2LKB340F0	DIODE,SCHOTTKY SB340FL-6737
D514	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
▲D515	AE005172	D27A85T400	DIODE,SCHOTTKY RB085T-40
D516	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D517	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
▲D518	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
DIODES			
D519	AD300069	D97U02701B	DIODE,ZENER MTZJ27B T-77
D520	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
▲D521	AE006060	D28T0ERB20	DIODE,RECTIFIER 10ERB20-TA1B2
▲D522	AE006060	D28T0ERB20	DIODE,RECTIFIER 10ERB20-TA1B2
▲D523	BZ410037	D97U03301B	DIODE,ZENER MTZJ33B T-77
D524	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
▲D525	BZ410010	D28T21DQN9	DIODE,SCHOTTKY 21DQ09N-TA2B1
D529	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D530	AE006394	D28T0ERB60	DIODE,RECTIFIER 10ERB60-TA1B2
D531	BZ410034	D97U01301B	DIODE,ZENER MTZJ13B T-77
▲D532	BZ410012	D28TQS04N0	DIODE,SCHOTTKY 11EQS04N-TA1B2
D534	AE006602	D97U02R41B	DIODE,ZENER MTZJ2.4B T-77
D535	BZ410021	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
D536	BZ410021	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
D538	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D601	AD301537	0021E5Q210	LED LTL-1CHGE-002A
D602	AE006568	0021761010	LED SLR-343BTT32
D603	BZ410022	D97U06R81B	DIODE,ZENER MTZJ6.8B T-77
D701	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D1703	BZ410061	D97U01001B	DIODE,ZENER MTZJ10B T-77
D1704	BZ410086	DD7R0S3550	DIODE,SILICON 1SS355 TE-17
D1705	BZ410086	DD7R0S3550	DIODE,SILICON 1SS355 TE-17
D3001	AD301638	0010E00330	INFRARED LED LTE-3271T-012A-O
D3002	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D3003	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8002	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8003	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8004	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8005	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8006	BZ410012	D28TQS04N0	DIODE,SCHOTTKY 11EQS04N-TA1B2
ICS			
IC101	AD301643	I03F3206M0	IC LA71206M-MPB
▲IC501	AD302211	I1KJ9A431A	IC KIA431A-AT
▲IC502	AE006610	I1KA78R120	IC KIA278R12PI
▲IC503	AE002809	000220002W	PHOTO COUPLER PS2561AL1-1-V(W)
IC601	AE001880	IF4K063150	IC PT6315
IC701	AE004692	I03F670BM0	IC LA72670BM-L-MPB-E
IC801	AE004647	I01FF58320	IC AN5832SA-E1V
▲IC1702	AE006606	I0GA9XF010	IC PQ070XF01SZH
▲IC1703	AE005180	I1KA98R12A	IC KIA78R12API
▲IC1704	AE006606	I0GA9XF010	IC PQ070XF01SZH
IC3001	AE006611	I54F50154A	IC OEC0154A
IC3002	AD301641	I9UF032310	IC PST3231NR
IC3099	AE006626	S2G101HE01	MEMORY DATA BR24L08F-WE2
IC4001	AE006615	ICQM0BGCG0	IC ZR36750BGCG-V
IC4002	AE007063	S2G101HE04	MEMORY DATA BR24L16FJ-WE2
IC4003	AE006613	I97F052290	IC BD5229G-TR
IC4004	AE006616	IF6J08M167	IC MT48LC8M16A2P-7E
IC4005	AE006616	IF6J08M167	IC MT48LC8M16A2P-7E
IC4006	AE006628	S2G101HF01	MEMORY DATA M5M29KT331AVP
IC4007	AE006616	IF6J08M167	IC MT48LC8M16A2P-7E
IC4008	AE006616	IF6J08M167	IC MT48LC8M16A2P-7E
IC4009	AE006614	ICQK0PQCG0	IC ZR35100PQCG
IC4010	AE006612	I5CJ0G1250	IC SN74LVC1G125DCKR
IC7301	AE003584	I17F017530	IC PCM1753DBQR
IC7302	AD301988	I0UF015010	IC MM1501XNRE
IC7303	AE006617	IFJJ0775S0	IC WM8775SEDS/R
IC8301	AE006220	I05FEA45FG	IC TC90A45FG
IC8302	AE006608	I0QF02246M	IC NJM2246M-TE1
IC8303	BZ611104	I0QF02533V	IC NJM2533V(Te2)
IC8304	AE006609	I0UF015060	IC MM1506XNRE
IC8305	AE006609	I0UF015060	IC MM1506XNRE
IC8306	AE006607	I0QF020680	IC NJM2068M(Te1)
IC8307	BZ611139	I0QF02534V	IC NJM2534V(Te2)
IC8308	BZ611139	I0QF02534V	IC NJM2534V(Te2)
IC8309	BZ611139	I0QF02534V	IC NJM2534V(Te2)
IC8310	BZ611139	I0QF02534V	IC NJM2534V(Te2)
TRANSISTORS			
Q101	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q102	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q103	BZ510026	TPYJC05001	COMPOUND TRANSISTOR DTA124EKA146

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
TRANSISTORS			
Q104	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q105	BZ510073	TAATA12660	TRANSISTOR,SILICON
Q106	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q107	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q108	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q109	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q110	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q302	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
▲ Q501	AE002251	T25F035630	FET
▲ Q502	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q503	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q504	BZ510077	TAAT012714	TRANSISTOR,SILICON
Q505	AE006629	TDA0016910	TRANSISTOR,SILICON
▲ Q506	BZ510077	TAAT012714	TRANSISTOR,SILICON
Q651	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q652	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q1702	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q1703	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
▲ Q1705	BZ510077	TAAT012714	TRANSISTOR,SILICON
Q1706	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q1707	BZ510081	TPYJA05001	COMPOUND TRANSISTOR
▲ Q1708	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
▲ Q1710	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q1711	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
▲ Q1712	BZ510057	TAAT01281Y	TRANSISTOR,SILICON
Q1713	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q1717	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q1718	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q1719	BZ510045	TNYJD05001	COMPOUND TRANSISTOR
Q3001	BZ410097	0000M00390	PHOTO TRANSISTOR
Q3002	BZ410097	0000M00390	PHOTO TRANSISTOR
Q3003	BZ410106	0002700680	PHOTO COUPLER
Q3004	BZ410106	0002700680	PHOTO COUPLER
Q3005	BZ410107	0002700690	PHOTO COUPLER
Q3006	BZ410107	0002700690	PHOTO COUPLER
Q3007	BZ510081	TPYJA05001	COMPOUND TRANSISTOR
Q3008	AE002626	T8YJ2412K0	TRANSISTOR,SILICON
Q3009	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q3010	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8001	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8002	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8003	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8004	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8005	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q8006	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8007	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8008	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8009	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8010	BZ510081	TPYJA05001	COMPOUND TRANSISTOR
Q8011	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8012	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q8013	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8014	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8015	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8016	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8017	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8018	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8019	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8020	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8021	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q8022	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8023	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8024	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8025	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8026	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8027	BZ510107	TPAAA05001	COMPOUND TRANSISTOR
Q8028	BZ510021	TNYJC05001	COMPOUND TRANSISTOR
Q8029	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8030	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8031	BZ510026	TPYJC05001	COMPOUND TRANSISTOR
Q8032	BZ510109	TCAA3875SY	TRANSISTOR,SILICON

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
TRANSISTORS			
Q8033	BZ510026	TPYJC05001	COMPOUND TRANSISTOR DTA124EKAT146
Q8034	BZ510021	TNYJC05001	COMPOUND TRANSISTOR DTC124EKAT146
Q8035	BZ510072	TPAAC05002	COMPOUND TRANSISTOR KRA103SRTK
Q8301	BZ510113	T27T030180	FET 2SK3018T106
Q8302	BZ510113	T27T030180	FET 2SK3018T106
Q8303	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q8304	BZ510113	T27T030180	FET 2SK3018T106
Q8305	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q8306	BZ510113	T27T030180	FET 2SK3018T106
Q8307	BZ510113	T27T030180	FET 2SK3018T106
Q8308	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q8309	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
Q8310	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
COILS & TRANSFORMERS			
L101	AE004672	031626010R	COIL,BIAS OSC 1626010
L102	BZ310041	02167F101J	COIL 100 UH
L104	BZ310039	02167F220J	COIL 22 UH
L105	BZ310039	02167F220J	COIL 22 UH
L106	BZ310039	02167F220J	COIL 22 UH
L107	BZ310039	02167F220J	COIL 22 UH
L108	AE002102	021LA65R6K	COIL 5.6 UH
L109	BZ310039	02167F220J	COIL 22 UH
L301	BZ310039	02167F220J	COIL 22 UH
▲L501	AE006572	029X000113	COIL,LINE FILTER SS24V-K07325
L502	AD301539	02AHB0A0A4	CORE FERRITE W5T_20X10X10A
L503	AD301785	02167E100K	COIL R6-1 10 UH
L504	BZ310141	02167F100J	COIL 10 UH
L506	BZ310150	02167E220K	COIL R7 22 UH
L507	AD301785	02167E100K	COIL R6-1 10 UH
L701	BZ310183	021LA6220J	COIL 22 UH
L703	BZ310039	02167F220J	COIL 22 UH
L704	BZ310183	021LA6220J	COIL 22 UH
L705	BZ310039	02167F220J	COIL 22 UH
L706	BZ310039	02167F220J	COIL 22 UH
L801	BZ310041	02167F101J	COIL 100 UH
L1701	AD301785	02167E100K	COIL R6-1 10 UH
L1702	BZ310040	02167F470J	COIL 47 UH
L3001	AE000773	021LA6120J	COIL 12 UH
L7301	AE006570	0216SD1R0J	COIL 1 UH
L7302	AE006570	0216SD1R0J	COIL 1 UH
L7303	AE006570	0216SD1R0J	COIL 1 UH
L7304	AE006570	0216SD1R0J	COIL 1 UH
L7305	AE006570	0216SD1R0J	COIL 1 UH
L7306	AE006570	0216SD1R0J	COIL 1 UH
L7307	AE006571	0216SD6R8J	COIL 6.8 UH
L7308	AE006571	0216SD6R8J	COIL 6.8 UH
L7309	AE006571	0216SD6R8J	COIL 6.8 UH
L8001	BZ310039	02167F220J	COIL 22 UH
L8002	BZ310041	02167F101J	COIL 100 UH
L8003	BZ310079	021LA6101J	COIL 100 UH
L8301	AD300613	02167F150J	COIL 15 UH
L8302	BZ310141	02167F100J	COIL 10 UH
L8303	BZ310039	02167F220J	COIL 22 UH
L8304	BZ310039	02167F220J	COIL 22 UH
L8305	BZ310039	02167F220J	COIL 22 UH
L8306	BZ310039	02167F220J	COIL 22 UH
L8307	BZ310041	02167F101J	COIL 100 UH
L8308	AE002183	021LA6470J	COIL 47 UH
▲T501	AE006573	0481291184	TRANSFORMER,SWITCHING 81291184
JACKS			
J601	AE006073	060Q421048	RCA JACK AV1-06ADS-2
J602	AE006072	060Q401109	RCA JACK AV1-06AD-4
J603	AE006071	060Q401108	RCA JACK AV1-06AD-3
J655	AE004761	063D700010	JACK MDC-012V1-A_LF
J8001	AE004334	063D700009	JACK MDC-070V-A_LF
J8002	AE002759	060J431020	RCA JACK MSP-213V2-432_NI_LF
J8003	AE002813	063D700008	JACK MDC-070V-B_LF
J8004	AE002760	060J411033	RCA JACK MSP-213V1-732_NI_LF
J8005	AE002758	060J411031	RCA JACK MSP-213V1-432_NI_LF
J8006	AE002761	060J411032	RCA JACK MSP-213V1-652_NI_LF

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
SWITCHES			
SW601	AE001707	0504R01T38	EVQ11L05R
SW603	AE001707	0504R01T38	EVQ11L05R
SW604	AE001707	0504R01T38	EVQ11L05R
SW605	AE001707	0504R01T38	EVQ11L05R
SW606	AE001707	0504R01T38	EVQ11L05R
SW607	AE001707	0504R01T38	EVQ11L05R
SW608	AE001707	0504R01T38	EVQ11L05R
SW609	AE001707	0504R01T38	EVQ11L05R
SW610	AE001707	0504R01T38	EVQ11L05R
SW611	AE001707	0504R01T38	EVQ11L05R
SW612	AE001707	0504R01T38	EVQ11L05R
SW613	AE001707	0504R01T38	EVQ11L05R
SW614	AE001707	0504R01T38	EVQ11L05R
SW3001	BZ612016	0508S11001	LSA-1144EAU
P.C.BOARD ASSEMBLIES			
PCB010	AE007260	A2G103H010	DME030A
PCB240	AE006596	A2G101H240	DPE005A
PCB270	AE006597	A2G101H270	DEE034A
PCB280	AE006598	A2G101H280	DEE035A
PCBB10	AE007064	A2G103HB10	DME029A
PCBDP0	AE006600	A2G101HDP0	DEE033A
MISCELLANEOUS			
B501	BZ310122	024HT03563	W4BRH3.5X6X1.0X2
B651	AE005476	0246C51024	MMZ1608R102CT
B652	AE005476	0246C51024	MMZ1608R102CT
B653	AE005476	0246C51024	MMZ1608R102CT
B654	AE005476	0246C51024	MMZ1608R102CT
B655	AE005476	0246C51024	MMZ1608R102CT
B656	AE005476	0246C51024	MMZ1608R102CT
B657	AE005476	0246C51024	MMZ1608R102CT
B665	AE005476	0246C51024	MMZ1608R102CT
B4001	AE005476	0246C51024	MMZ1608R102CT
B4002	AE005476	0246C51024	MMZ1608R102CT
B4003	AE005476	0246C51024	MMZ1608R102CT
B4004	AE005476	0246C51024	MMZ1608R102CT
B4005	AE005476	0246C51024	MMZ1608R102CT
B4006	AE005476	0246C51024	MMZ1608R102CT
B4007	AE005476	0246C51024	MMZ1608R102CT
B4008	AE005476	0246C51024	MMZ1608R102CT
B7302	AE005476	0246C51024	MMZ1608R102CT
B7303	AE005476	0246C51024	MMZ1608R102CT
B7304	AE004602	024HC36001	HCB2012K-600T25
B7305	AE004602	024HC36001	HCB2012K-600T25
B7306	AE004602	024HC36001	HCB2012K-600T25
B7307	AE004602	024HC36001	HCB2012K-600T25
B7308	AE005476	0246C51024	MMZ1608R102CT
B8001	AE005476	0246C51024	MMZ1608R102CT
B8002	AE005476	0246C51024	MMZ1608R102CT
B8301	AE005476	0246C51024	MMZ1608R102CT
BT601	AE005640	141R004016	GR03X-SP2
CD102	AE004682	122F041508	2F041508
CD103	AE007029	W9L6012042	WG26 2C BLACK 120MM
△CD501	AE001245	1209419910	9419910
CD502	AE006630	WPL6016038	WG26 16C BLACK 160MM
CD504	AE006584	06C3641203	C3641203
CD602	AE007259	W9L6007038	WG26 2C BLACK 70MM
CD652	AE007065	122H070701	2H070701
CD653	AE007066	122H0B1802	2H0B1802
CP101	BZ614011	0697290620	TOC-C09X-A1
CP102	AE004674	069J740599	IMSA-9604S-04C
CP103	AD301649	067U002019	B2013H02-2P
△CP502	79099128	067U016019	B2013H02-16P
△CP504	AE003633	069V140339	A2544WV2-4P
CP506	BZ614416	069S220629	A2001WV2-2P
CP601	AE006576	069EVB3050	00_6232_011_102_800+
CP602	AD301649	067U002019	B2013H02-2P
CP603	AE006575	069EV73050	00_6232_007_102_800+
CP604	AD301649	067U002019	B2013H02-2P
CP651	AE006936	069EVB3030	00_6232_011_006_800+
CP652	AE006574	069EV73030	00_6232_007_006_800+
CD4003	AE006585	06CUJB1401	CUJB1401

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
MISCELLANEOUS			
CD6002	AE001243	06CPL02006	CABLE
CD6003	AE006433	06CPBA2006	CORD,RCA PIN
CD7301	AE002453	122H0K1802	CORD,JUMPER
CD7302	AE002453	122H0K1802	CORD,JUMPER
CD7303	AE006592	122H0F1801	CORD,JUMPER
CD7304	AE006583	06C32A2603	CORD,CONNECTOR
CP1701	BZ614213	069S2A0629	CONNECTOR PCB SIDE
CP1702	79099141	069R2G0589	CONNECTOR PCB SIDE
CP3001	BZ614289	06972C0010	CONNECTOR PCB SIDE
CP4006	AE006582	06A9604010	CONNECTOR PCB SIDE
CP4007	AE001188	069S270639	CONNECTOR PCB SIDE
CP7301	AE006579	069EVKT070	CONNECTOR PCB SIDE
CP7302	AE006579	069EVKT070	CONNECTOR PCB SIDE
CP7303	AE006578	069EVFT070	CONNECTOR PCB SIDE
CP7304	BZ614213	069S2A0629	CONNECTOR PCB SIDE
CP8301	AE006581	069JVK0200	CONNECTOR PCB SIDE
CP8302	AE006580	069JVF0200	CONNECTOR PCB SIDE
CP8303	AE006581	069JVK0200	CONNECTOR PCB SIDE
Δ DK4001	AE006594	169100033A	DECK CD
Δ F501	AD302166	081PC04005	FUSE
FH501	AE002634	06710T0009	HOLDER,FUSE
FH502	AE002634	06710T0009	HOLDER,FUSE
Δ ICP501	AE004954	0835C01003	MICRO FUSE
Δ ICP1701	AE006587	0835C01603	MICRO FUSE
Δ M501	AE006593	1519X56L04	FAN MOTOR
NR4001	AE005937	110P4470M4	R,NETWORK
NR4002	AE005937	110P4470M4	R,NETWORK
NR4003	AE005937	110P4470M4	R,NETWORK
NR4004	AE005937	110P4470M4	R,NETWORK
NR4005	AE005937	110P4470M4	R,NETWORK
NR4006	AE005937	110P4470M4	R,NETWORK
NR4007	AE005937	110P4470M4	R,NETWORK
NR4008	AE005937	110P4470M4	R,NETWORK
OS601	AE001713	077Q037002	REMOTE RECEIVER
OS8001	AE000830	07AQ000009	OPTICAL DEVICE
TM601	AE006586	076D0KZ010	TRANSMITTER
Δ TU301	AE006569	0162300044	RF UNIT
TR1701	BZ310118	02AHB9A972	CORE,FERRITE
V601	AE006588	096F90R407	TUBE FLUORESCENT DISPLAY
X101	AE001717	100DT3R528	CRYSTAL
X3001	AE004679	100GT01006	CRYSTAL
X3002	BZ613006	100DA32R01	CRYSTAL
X4001	AE006589	100DT02712	CRYSTAL

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

TOSHIBA CORPORATION

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